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THE
**South African
MINING JOURNAL**

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"The South African Mines, Commerce & Industries"

ESTABLISHED 1891

PUBLISHED EVERY SATURDAY

VOL. XXVI., PART II. No. 1334.] THE SOUTH AFRICAN MINING JOURNAL. APRIL 21, 1917. [WEEKLY, PRICE 6D.

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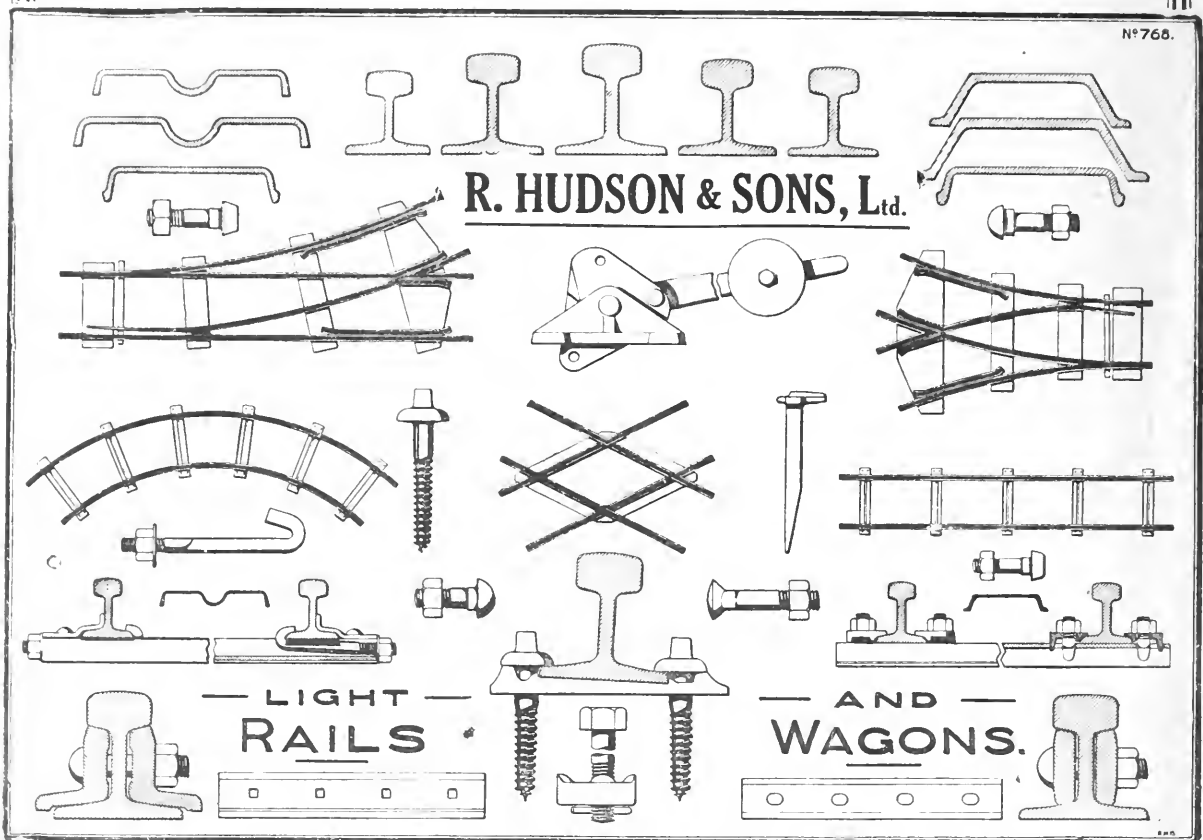
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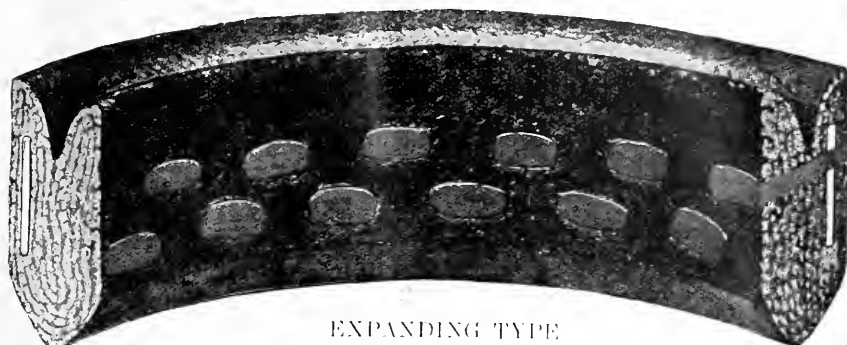
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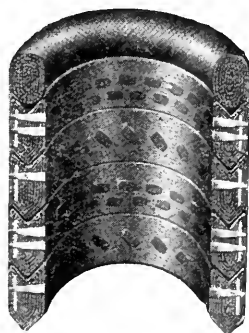
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ESTABLISHED 1891.

VOL. XXVI., PART II.] APRIL 21, 1917. [No. 1334.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.Telephone **913**. P.O. Boxes **963** and **418**.Cable and Telegraphic Address: "**MINING JOURNAL.**"**AGENTS FOR GREAT BRITAIN:** Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.**AMERICA:** Gotham Advertising Co., 95, Liberty Street, New York.**ANNUAL SUBSCRIPTION RATES:** Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining Journal* is: South Africa, 1d. All other parts, 1½d.

CONTENTS.	PAGE
Notes and News	171
Topics of the Week:	
The Last of State Mining	173
The Restriction of Imports and the Priority Committee	174
Coal Mining Progress in the Ermelo District	175
Personal	176
Answers to Correspondents	176
The Week in the Sharemarket	177
The Metric System and a Uniform System of Weights and Measures—II.	178
The Organisation of Mine Safety and Sanitation—III.	179
Engineering Notes and News	181
The Week in the Mining Material and Engineering Trades	183
The Week's Meetings: Rhodesia Chamber of Mines; Witwatersrand Native Labour Association	188

Notes and News.

A full report of the speech made by Mr. E. A. Wallers at the annual meeting of the W.N.L.A. this week will be found in another part of this issue. The speech provides an authoritative summary and review of the manifold questions relating to the conditions under which the native labourers of the Rand work, live and are recruited. The facts and figures with which Mr. Wallers's address is closely packed are of the first importance to every student of the industry, and we shall take an early opportunity of again referring to them.

A full report of the address delivered by the President of the Rhodesia Chamber of Mines at the annual meeting will be found in another part of this issue. The address covers the whole field of Rhodesian mining and provides a valuable review of conditions in Charterland. The Administrator, Sir F. D. P. Chaplin, also made an interesting speech at the meeting, a report of which we also print.

The Brakpan directors' quarterly report for the period ended 31st March, 1917, shows that the linear development for the quarter amounted to 5,337 feet, of which 4,115 feet were on reef averaging 9'88 dwts. over a reef width of 42'68 inches. Of the footage on reef 2,225 feet, equivalent to 53'7 per cent., were in payable areas and averaged 15'10 dwts. over 45'82 inches. Shareholders have been notified through the press that the annual recalculation of the payable ore reserve shows a total of 3,054,000 tons of an average assay value of 9'2 dwts. per ton over an estimated stoping width of 62 inches. As compared with the reserve of a year ago, this is an increase of 37,000 tons, the average assay value being 1'31 dwts. higher over the same estimated stoping width.

The details of the quarter's development at Daggafontein for the three months ended March 31 show that of the footage sampled during the quarter, 47'2 per cent. showed payable assays, and averaged 30'35 dwts. over 14'25 inches. A similar analysis of the total development to date shows 42'8 per cent. of payable footage, averaging 11'90 dwts. over 9'20 inches. No sinking was done in No. 2 shaft during the quarter, pending the erection of headgear, boilers and winding plant. The Rand Water Board purchased 9,081,000 gallons of water during the quarter. During the period under review the capital of the company was increased by £100,000, and 100,000 shares of £1 were issued and allotted in terms of the flotation agreement with the Consolidated Mines Selection Co., Ltd.

The report on the operations at Springs Mines during the quarter ended 31st March, shows that the linear development for the quarter amounted to 1,713 feet, of which 2,950 feet were on reef averaging 19'37 dwts. over a reef width of 49'89 inches. Of the footage on reef 1,725 feet, equivalent to 58'5 per cent., were in payable areas and averaged 27'80 dwts. over 21'75 inches. It was stated in the last quarterly report that hoisting of ore from the mine was expected to be commenced towards the end of January, but owing to unforeseen delay in the erection of the headgear the crushing of ore from the development dump was continued until the end of February. The low yield during March was due to the further considerable absorption of gold by the plant. Milling operations having commenced, no further estimates of tonnage developed will be made until the end of the year, when the general recalculation of the ore reserve takes place. In the meantime, a summary of the results of current development will be reported quarterly on a linear basis.

Meeting— of the Rand Klp and Cloverfield shareholders have now confirmed the agreements with "Modder East," the Modder East people, and the new company will in due course proceed to registration. A report of the proceedings at the Cloverfield meeting will appear in our next issue. Meanwhile, it may be noted that the British Treasury has consented to the raising of the working capital for the new company, though it withholds its consent to have the shares quoted on the London Stock Exchange. Still, the Johannesburg market will doubtless provide sufficient activity in the shares of a company which is described by the Cloverfield Chairman as one "with a considerable amount of working capital in hand, and all the alluring prospects attaching to a large gold-mining proposition on the Far Eastern Rand ahead of it."

As recently announced by cable, the Consolidated Mines Selection Company distribution for the past year is 2s. 3d. per 10s. share (equal to 22½ per cent.), as compared with 1s. 6d. per share for 1915; and with only 6d. per share for each of the years 1914 and 1913.

Moreover, the reserve is further increased by £15,000 to £60,000; and again a sum of over £12,000 is carried forward. The chief business which the company now has in hand is in connection with the financing of the Brakpan extension scheme, and the development of the Daggafontein; and it is evident that the company is in a very strong financial position.

Issued more than two months later than a year ago, the accounts of the New Transvaal Chemical Company for the twelve months to June 30 last show a net profit, after providing for debenture interest and depreciation, of

£19,734, as against £35,361 for 1914-15. After paying the preference dividends the distribution on the ordinary is to be increased from 8 to 20 per cent., now payable on an additional £11,000 of capital, and over £1,000 more will be carried forward. The report states that in order to protect the gold mining industry and also the trade, the company has been compelled to lay in and contract for very large stocks of raw materials, notwithstanding the grave risk of loss in depreciation. The stocks have been taken at prices which, as far as can be foreseen, provide against possible loss from depreciation or other causes.

Owing to the fact that the industrial section of the last census was very incomplete, arrangements have been made for taking an industrial census of the Union next month, or in June. The term industrial in this connection includes every productive establishment, excluding agriculture and mining, which employs four or more persons or motor power. Under the Act agriculture may form the subject of a separate census. It is not yet known within a thousand or two how many separate concerns there are in the Union which will come under the operation of the proposed census. In the present case the Government has powers under the Act of entry into premises and can insist on the declaration of all material facts. The utmost secrecy, however, is ensured and returns may not even be divulged to the Minister of the Department or to members of the Statistical Council. The data to be investigated will include capital involved, wages paid, the number of employees, days worked and material used, and the total production of the factories for the twelve months ending May 31, 1917. The results will be far-reaching in their bearing on South African problems, and will especially facilitate comparisons between urban areas in matters such as the rates of wages, cost of living, proportion of European and coloured labour, etc. The Act, it may be mentioned, provides ample safeguards regarding secrecy of officials and also gives officials ample powers in the case of recalcitrant informants.

We understand that the appeal of the Amalgamated Properties of Rhodesia against Mr. Justice Eade's decision in the famous "Phoenix Reef" case was, in mail week, duly lodged, and that it is hoped it will come up for hearing in four or five weeks' time. It was originally contemplated before his ascent to the Woolsack to brief Lord Finlay for the appellants, but, as it is, their case will be in the hands of Sir John Simon, K.C.

Holders of the Tanganyika Company's 5 per cent. debentures, who agreed to the proposal put forward about a couple of years ago to defer payment of interest until the expiration of six months after the conclusion of the war, have been very agreeably surprised. It will be remembered that the directors expressed their intention of paying the arrears earlier if possible, and they now announce that they have made arrangements for the payment of Coupon No. 16, which fell due on January 1, 1915. The payment includes interest on accrued interest to that date. Two inferences at least may be drawn from the notification—either that a portion of the funds has been released by the Union Minière, or that the position and prospects are so promising that capitalists are only too keen to establish a connection with the Katanga industry at the earliest possible moment.

The fifth annual competition for the Underground Workers' Shield, presented by the Chemical, Metallurgical and Mining Society of South Africa, will be held (by kind permission of the directors and general manager), at the Village Deep, Ltd., on Sunday next, the 22nd inst.

The mine is situate on the left-hand side of Eloff Street Extension, at the first stage of the Turffontein tram running via Eloff Street. All Forest Hill, La Rochelle and Rosettenville trans pass the mine, and leave the Market Square at 7.45 a.m., and every 15 minutes afterwards. A Red Cross flag will denote the spot. Owing to there being twelve teams competing, and the time being limited, it is proposed to divide the competition into two sections, each section being judged by three judges, the two first teams to decide by a simple test on the surface which is the winning team. The following entries have been received, but the order in which the teams will compete will not be available until Friday: (1) City Deep, Ltd. (A); (2) City Deep, Ltd. (B); (3) Cons. Langlaagte Mine; (4) Crown Mines, Ltd. (A); (5) Crown Mines, Ltd. (B); (6) Luipaardsvlei Estate; (7) Robinson G.M. Co., Ltd.; (8) Rose Deep, Ltd. (A); (9) Rose Deep, Ltd. (B); (10) Village Deep, Ltd.; (11) Village Main Reef G.M. Co.; (12) Wolhuter G.M., Ltd. The competition will commence at 8.45 a.m. sharp, and all teams are requested to meet at the mine office not later than 8.15 a.m., in order to be in readiness. Underground clothes must be brought and worn by all competitors. The usual indemnity form must be signed by all proceeding underground, but the teams who are competing with the knowledge and sanction of their respective managers are covered against accidents by a special provision in the Workmen's Compensation Act. Each team must provide the equipment required by Clause 18 of the rules, and the particular attention of all competitors is drawn to Clause 13 of the rules. Should inhalation apparatus be required in the practical test, it will be provided. By the kindness of the management, lunch will be provided for the competitors and officials.

While the financial leaders in the United States are worried over the vast amount of gold in that country, and the steady influx in the last two years, other countries are desperately striving to increase their store. According to an article in the *Mining and Scientific Press*, Russia especially is worried about the leakage of gold across her frontier. This leakage is stimulated because the foreign

The Struggle for Gold.

buyer has his gold minted free, while the Russian mint charges in all 8 per cent., of which 6 per cent. is illegal. The gold produced in Russia and Siberia is surreptitiously bought by Chinese and German agents, who pay a much greater price than the Russian mint. The leakage is also stimulated by lessened smaller transportation charges and speedier returns by the foreign buyer as compared with the dilatory procedure of the mint. Moreover, much gold is produced by "poachers" who naturally smuggle it out of the country. The remedy suggested is for the Government to buy the gold at the place of production and pay the market price. According to an article in the *Rhein. Westfälische Zeitung*, quoted in *Zoloto i Platina*, elaborate plans for enticing gold from Russian and British producers were developed by a special commission of the German Imperial Bank. By this plan illicit gold miners in Siberia, private buyers of gold, and agents of the German Government are to be induced to collect gold for German use. German consuls are instructed to issue special appeals to illicit-gold miners in their own language and to pay a higher price than that ruling at the mines. Special agents are to be hired at a fixed commission. Private buyers are to be attracted by giving special credits and by speedy payment for the gold; and by the payment of a premium, which in July, 1915, was about 1.25 per cent. for those delivering about £2,500. German and Austrian subjects who buy gold are given large credits and stimulated by honorary titles, orders, and privileges. Buying of gold is carried on by all banks, insurance companies, post, telegraph, and telephone offices; steamer, railway, and forwarding agents; doctors, judges, pastors, custom and frontier authorities, and the Government agents that are found in all German firms; to assist in this work local consuls are obliged to open credits. Tables have been prepared, and sent to all consuls, giving the assays of gold from the various districts. These tables include minute subdivisions; for example, the Amoor region is subdivided into 14 districts; Manchuria into 22; Belgian Congo into 65; British East Africa into 17 districts. This system enables the Germans to make a close approximation to the value of the gold offered. In Peking, Chefoo, and Shanghai the Germans have built permanent laboratories in which careful estimates of the value of the gold are prepared and a final settlement is then made with the sellers, who are in the first instance paid about 95 per cent. of the supposed value.

* * * *

A London contemporary says:—"The diamond market continues in a very unsettled state, and although the undertone is as strong as

Diamond Trade and Insurance. ever, business is very restricted. The insurance trouble remains the bugbear of

the position, and until rates again approach the normal no big transactions are to be expected. Taking into consideration the high rates ruling for insurance and the difficulties of cutting diamonds in Amsterdam, it would seem to us to be worthy of the notice of the big houses to establish cutting factories in London. There are numbers of Belgian refugee cutters in this country, and we learn that several small factories are at present working with good results; but having regard to the fact that 90 per cent. of the rough diamonds come from British Possessions, and with a view to the consolidation of Empire interests after the war, the establishment of some big cutting factories should be of great advantage, not only to the diamond trade, but to the country as a whole." The same paper adds:—"Business in the diamond trade must be described as completely at a standstill, and with the prospect of the entry of the United States into the war arena a certain pessimism seems to prevail, and it is argued in some circles that no dealings of any moment are likely to take place for at least six months. When it is considered that the rates for insurance are 5 per cent. from South Africa to London, 5 per cent. each way between this country and Holland, and 5 per cent. to the United States, which means if the goods are cut in Holland 20 per cent. increase for insurance alone and 10 per cent. if the goods are cut in America, it seems as if those who decry the position are mainly in the right. From inquiries that we have made in usually the best-informed quarters, however, it appears that these gloomy forebodings are not shared by everyone.

TOPICS OF THE WEEK.

THE LAST OF STATE MINING.

WITH the publication of the findings of the Commission on State Mining this week we hope we have heard the last of the cry for that most speculative form of State Socialism. The Majority Report, signed by Messrs. Ross Frames, the Chairman, John Taylor and J. L. Van Essen, finds, of course, that those who fathered the whole mumbo-jumbo of catchwords about saving the people's millions of gold on the Far East Rand have utterly failed to prove their case. As the report tersely puts it: "Your Commissioners have come to the conclusion that mining is a peculiarly risky and speculative business, and that the Far East Rand is no exception to the rule. It seems to your Commissioners that the onus lies upon those who advocate State mining to prove that the Government will derive greater benefits from working the gold-bearing areas on the Rand, and particularly the Far East Rand, than it secures from the present system of leasing with a participation in the profits. This onus has not been discharged to the satisfaction of your Commissioners signing this report. "(1) Under all the circumstances and for the reasons and considerations hereinbefore set forth the Commissioners signing this report do not recommend the Government of the Union of South Africa to engage directly in mining for any minerals." That judgment, we trust, will be regarded as final by the Government, and by Parliament, when the question again comes up for discussion. It is true that the Majority Report goes on to make certain recommendations as to the procedure to be followed in the event of its advice being ignored, and the Government foolishly embarking on State mining. But these recommendations are merely subsidiary to the main finding, and in no way obscure the obvious intention of the framers of the Majority Report. That intention is plainly and emphatically to dissuade the Government and the people from playing any longer with the idea of State mining. Of course, the Nationalists and the Labourites, who worked up that idea for all it was worth in order, as usual, to give as much trouble as possible, were forced to offer some show of fight. In two more or less discursive and irrelevant Minority Reports, Mr. Tielman J. Roos states the Nationalist view and Mr. Miller the Labour view respectively. Most of the first Minority Report is taken up with some amateur opinions in regard to the Government control of gold and diamond mining companies in which it has a direct interest. Whatever may be the value of these views, they fall outside the four corners of the terms of reference—as the Majority Report very caustically points out—and they have, therefore, nothing to do with the case. Where Mr. Roos does return to deal with the real question at issue, he becomes merely the quibbling lawyer whose pleas are more subtle than convincing. "I am entirely in favour of the principle," says Mr. Roos, "that where the State's property has been proved, as in the case of the East Rand, the State itself should develop that proved property. I need scarcely point out that this is not advocating the principle that the State should acquire land for the privilege of mining it, or that the State should go in for general mining work." This is, of course, an extraordinarily inconsistent and question-begging attitude to take up, and stultifies all the fine arguments used by the preachers of the principle of State mining. The question at issue—as even the Labour man in his report clearly recognises—is the very important one of State Socialism translated into the highly experimental form of State gold mining, and the doubtful expedient recommended by Mr. Roos does not help us to answer the main question at all. The fact is, there has never been any genuine popular demand for State mining, and the absence of that demand is reflected in the failure of its few supporters to make out anything but a feeble and unconvincing case. The real purpose of that alleged demand having been served, namely, to delay the development of the Far East Rand, it is to be hoped that the Government, having no longer any excuse for postponing the legislative reforms necessary to secure that development, will find itself shamed out of its lethargy into taking the long-prayed-for action.

THE RESTRICTION OF IMPORTS AND THE PRIORITY COMMITTEE

Personnel of the Committee—Details of New Conditions.

The personnel of the Johannesburg Local Priority Committee, which covers the Transvaal, is as follows: Messrs. John Denham, Inspector of Machinery (Chairman); T. G. H. Orpen, Collector of Customs; G. S. Burt Andrews, Town Engineer; and E. J. Cattell, Secretary of the Chamber of Commerce, with Mr. Thomas Greig as Secretary. The office of the Committee is No. 20, first floor, New Law Courts, Johannesburg. Telephone No. 5675. The Local Priority Committee will receive and consider applications, except: (a) From mines which are members of the Transvaal Chamber of Mines; (b) from all other mines; (c) from engineering firms and workshops; (d) from Government departments. The existing arrangements in regard to applications under (a) will remain undisturbed, and those under (b) and (c) should be forwarded to the Government Mining Engineer, Johannesburg. Forms of application will be furnished by the secretary and all applications must be made on these forms in quintuplicate for submittal to the Local Priority Committee. Where an application is considered to be of the greatest importance the Controller of Imports will, if it is desired, cable his recommendation to the Minister of Munitions at the expense of the applicant. Special attention is directed to the following:—No applications will be recommended for priority certificates in respect of orders connected with new schemes or extensions of existing undertakings, whether in the nature of buildings, plant, or machinery, unless they are considered as being urgent and essential for the conduct of the war, when special reasons for this opinion must be given. Applications for the importation of restricted goods can only be considered when they are made for exceptional requirements connected with repairs necessary to existing industries or the maintaining of their continuity of operations, and then only when all other means of meeting the situation have been exhausted, *e.g.*, (a) substitution of materials, or (b) supplementing the requirements of one district from existing stocks in other districts. N.B.—Applicants should realise that priority is only refused with great reluctance by the Minister of Munitions in order to conserve the maximum supplies for hastening the Allied victory and the satisfactory peace. It will not be possible to deal with applications in dribbles, and a complete indent for a period only can be considered. When asking for supplies of consumable stores it is advisable to restrict the demand to cover as short a period as may be possible, as small orders, say for three months' supply, have a better chance of being put through quickly than larger ones. An attempt has been made to obtain a complete list from England, of restricted goods, for circulation, but this it has been found impossible to furnish. The following list will, however, serve to illustrate roughly the goods classed as restricted, for which priority must be obtained (and in many cases cannot be granted):—All steel, including wire, plates, shafting, and all other forms, tin plates and black plates,terne plates, sheeting, all copper and brass machinery generally, including agricultural, mining and textile, also agricultural implements, presses, hammer cranes, labour saving devices, *e.g.*, for breadmaking and dairy, belting rivets, bolts, nuts, screws, small tools, etc., chemicals. There is considerable delay at present in securing compliance with orders for copper, brass and steel, and it should be noted that it is much easier to obtain iron than steel. Recent experiments have demonstrated that "shell discard" is a good substitute for ordinary mild steel, and should be used whenever possible. The following details regarding some of the lines mentioned will be of interest:—Steel: (a) No mild steel is allowed for constructional work, new plant, or machinery, unless direct and urgent war interests are involved; (b) it has been found necessary to refuse steel for nearly all applications for civil orders for cutlery and other similar trades in which no urgent war interests are involved; (c) progress is being continually made in the adaptation of "shell discard" steel for ordinary purposes. Smaller sections in joists, also angles, tees and

a few channels can now be rolled in shell discard steel, and firms have been able to roll sheets of 11 gauge and, in some cases, even down to 20 gauge. Every effort is being made to divert users of baling hoops from mild steel to shell discard, and it is believed that where a hoop of 17 b.w.g. or thicker can be used, shell discard steel forms a suitable substitute for mild steel. Tin Plates and Black Plates: These are not available at present. Terne Plates: A limited quantity is allowed only for the packing of delicate textile goods for passage through damp and tropical climates. Sheetting for Roofing Purposes: No galvanised or black corrugated or plain sheetting is available for export. Steel Wire: The position with regard to steel wire is not easy, and in the case of hard wire there is greater scarcity than in the case of soft wire. It will be almost impossible, therefore, to meet the demands for steel hawsers or wire ropes, and transport and industrial users must endeavour to splice the existing ropes and not count upon having any in stock as standby. Steel Plates: These are practically unobtainable for industrial purposes and every makeshift must be resorted to in the case of boilers and tanks requiring plates. Steel Shafting: None will be available for some time. Copper and Brass: Copper, brass and other copper alloys are not available, neither is copper or brass wire nor copper or brass tubing. Textile Machinery: This is not available. It may be noted that the replacing of old textile machinery by new is regarded in the United Kingdom for the purpose of priority classification as new machinery and not as repairs. Motor Cars and Cycles: Permission cannot be granted for the manufacture of new motor cars or new motor lorries. This applies also to steam wagons. Owing to the impossibility of obtaining steel balls and tubes no assistance can be given to cycle manufacturers. Electrical Machinery and Plant: No plant is available for ordinary industrial purposes. Large and important schemes of electrification both in the United Kingdom and the Dominions have been postponed until after the war. Telephone apparatus and material is also scarce. Agricultural Implements: The manufacture of agricultural implements for export is, for the present, being discouraged. Agricultural tools are generally allowed in shell discard steel. Sugar and rubber tools are also being made in the same quality steel. Chemicals: Supplies to even very important industries have been reduced to a minimum and wherever possible the use of substitutes has been insisted upon. General: No supply of large presses, hammers, cranes, conveyors, or other lifting work, is possible, and the manufacture of labour-saving devices, bread-making machinery, utensils, etc., is exceedingly difficult. The manufacture of leather and balata for other than war work is practically forbidden. The holding of stocks of rivets, bolts, nuts, screws, small tools, etc., is being discouraged, and no permits are granted for replacements for stock purposes. Permits for the manufacture of brass screws, except for war purposes, are being refused. These instructions are subject to alteration and amplification from time to time.

A Southern Van Ryn Strike.

The Southern Van Ryn people inform us that they have struck a rich, wide reef, identified with the Nigel Reef, in a shaft on their property. The reef is about 3 feet wide and has returned highly payable assays. Work is proceeding.

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COAL MINING PROGRESS IN THE ERMELO DISTRICT.

[FROM OUR CORRESPONDENT.]

TAKEN altogether, satisfactory progress continues to be made in the opening up and development of the Ermelo coalfield. The principal drawback this field suffers from is the heavier rate charged for railage when compared with that from the Witbank district, and were it not for the flat rate charged to the Cape and the easier rate to the eastern markets, it would be well-nigh impossible to carry on coal mining in the Ermelo district on a large and profitable scale. Strange to say no coal whatever is at the present time being consigned to Delagoa Bay for bunkering purposes, although that is the natural outlet for the Ermelo coal. Probably ere long, however, and especially when Breyten is linked up through Swaziland by rail with Delagoa Bay, the bulk of the coal produced in the Ermelo district will be disposed of for bunker and export purposes. At the present time, however, quite four-fifths of the round coal produced in the district is supplied to the Railway, more particularly for consumption in the Cape, whilst outside that consumed locally, the bulk of the balance finds its way to Capetown. The general position of affairs in the district is that most of the attractive properties near the railway have been taken up either on option or to exploit, but the majority of the producing collieries are still in the development stage. It therefore is to be anticipated that for some time to come the output of coal in the Ermelo district should continue to increase. With regard to the Carolina section of the district, very unsatisfactory progress in connection with the opening of the coal properties is to be seen, notwithstanding that they are nearer to Delagoa Bay to-day by rail than either the Ermelo or Witbank collieries. The explanation may be found in the fact that practically all the coal farms of value are held by mining groups on the Rand, who so far have not shown any inclination to turn them to profitable account. The Middelburg Steam Coal and Coke Company, Ltd., at present working a colliery at Witbank, have recently acquired Prime's Colliery, situated about six miles south of Carolina, but at present nothing is being done towards working the property. It was worked on a small scale and in a very primitive manner with indifferent results for some time, but the conditions are such that with a proper equipment, satisfactory results ought to be obtained. Breyten seems likely to become the chief coal producing centre of the Ermelo district. The fillip given in this direction by the opening of the Breyten Collieries by the Consolidated Goldfields of South Africa will be felt for some time, and already several important collieries are being opened in that neighbourhood. At the present time more than one-half of the total coal output of the Ermelo district is produced by the Breyten Collieries, whose requisition from the Railway alone is nearly a thousand tons per day, not to mention the requirements of the gold mines controlled by the Consolidated Goldfields group. The seam of coal at these collieries is worked entirely by adits, and so much energy has been shown in opening up the coalfield that within a few months when railway connection was obtained, the daily output exceeded a thousand tons per day. This energetic working has been maintained, for occasionally the output exceeds two thousand tons per day, notwithstanding the fact that the coal from the nearest working face has to-day to be hauled to the screens by endless rope for over a distance of a mile. The coal seam, as is generally the case in the Ermelo district, varies in thickness but averages a little over four feet. Dykes, faults and other troubles add to the

difficulties of working. The coal at Breyten is practically all worked by means of the Siskol machine, and although the seam is thin the average production per head is satisfactory and will compare favourably with collieries working under similar conditions. One striking feature of the Breyten equipment is its suitability to the varying underground conditions, and the efficient manner in which the coal is hauled over such a long distance to the screening plant. About seven miles to the north-east of Breyten Station along the railway running to Carolina, another new colliery has rapidly sprung into existence. At a point where a 6 ft. seam of coal outcropped in a gully a Molteno syndicate about three months ago started development operations, and secured railway connection about a month ago. To-day the output is over 7,000 tons per month, of which 5,000 tons are being supplied to the Railway for loco. purposes. The coal has been subjected to practical tests by the Railway, with the result that the Railway have signified their willingness to take 15,000 tons per month. The seam of coal apparently outcrops all round the gully, which is large enough to accommodate a decent sized colliery. Three adits have been driven into the seam—two in a northerly and one in a westerly direction—the seam apparently maintaining its thickness and quality in all directions. The syndicate has apparently brought its plant from Molteno: it is far from up-to-date and scarcely suited to the working to the best advantage of such a thick seam, but so far it has proved ample to develop the colliery to such an extent as to produce a profitable output. Owing to the success attending the efforts of this syndicate, other capitalists from Molteno have visited the Ermelo and Middelburg districts on the look-out for suitable coal properties to open up and develop now that the Railway has refused to purchase any more Stormberg coal for locomotive purposes. On another divided portion of Smutssoog farm, now known as Sussanna, a Harismith syndicate has also started operations. A prospecting shaft was sunk and the coal intersected which made, however, so much water that a trench had to be cut to drain the shaft. The seam struck is of good thickness and apparently of good quality but too little work has been done on the seam to speak with any confidence as to its prospects. It appears to be the main seam of the Breyten district, such as is worked at all the collieries, and being well situated for the railway, there ought to be no difficulty experienced in soon obtaining a profitable output. Even in the neighbourhood of Kranzpoort, where the coal lies at a good depth, negotiations are in progress for the opening of a colliery, and generally speaking there is a fair enquiry for Ermelo coal properties. About two years ago a company with £10,000 capital was formed to acquire the Spitzkop Colliery, situated about three miles north of the town of Ermelo. The coal seam, about 5 ft. thick, outcrops on the south and westerly side of a kopje, and was the scene of the first discovery of coal in the Ermelo district. The Spitzkop Colliery is connected by a branch line some five miles long with the Ermelo-Breyten line of railway. The capital of the company was entirely subscribed in Capetown, Sir Frederick Smith being Chairman of the company. The original capital was practically spent before anything useful was accomplished at the colliery. The coal is worked by means of adits driven into the side of the kopje. The bulk of the output is taken by the Railway, whose present requisition is 7,000 tons per month or thereabouts. The balance of the output goes principally to Capetown, the nut

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coal being almost entirely consumed by the Capetown Corporation Power Station. About fifteen years ago a huge dyke was discovered to cross the property in an east to west direction, but a bonhole put down to the north proved the seam of coal to occupy its normal position. This dyke was reached in the workings about eighteen months ago, but as nothing was done to prove it for some considerable time, it materially impeded the development of the mine. On living through the dyke it proved to affect the coal for a width of over 500 ft., but to the north good coal has again been entered. About a mile north-east of Ermelo Station is the Bellevue Colliery, a small concern worked spasmodically for the last ten years. It has now, however, been acquired by a Johannesburg company, thoroughly re-equipped, the shaft enlarged and placed on a sound working footing. The seam is 5 ft. 8 in. thick and lies wonderfully regular and uniform as far as the present workings extend, no sign of dykes or faults being yet perceptible, a rather unique experience as far as the Ermelo district is concerned. The new proprietors commenced producing coal about six months ago, and appear amongst those on the Railway list as called upon for 3,000 tons per month. In close proximity to Ermelo Railway Station is the Townlands Colliery, with the right, as the name implies, of working the coal under

the Townlands, an area of, say, 3,500 English acres. The coal is worked by means of a shaft about 150 ft. deep, the seam averaging 4 ft. 6 in. in thickness of clean coal, which may be taken to be more or less the average of the district. The colliery is owned by a Johannesburg group, the company having an issued capital of £30,000. Ever since the outbreak of the European war the colliery has been worked on a small scale by tributors, the present output being in the neighbourhood of a thousand tons of round coal per month. The bulk of the output of this colliery is also taken by the Railway for loco. purposes at Capetown, the balance being disposed of locally. Several attempts have been made to work coal deposits of limited extent lying along the railway to the south-east of Ermelo along the Piet Retief railway, but the country is much broken up by dykes, and the coal mostly so damaged as to be unsaleable. About five miles east of Ermelo Station the coal has been so metamorphosed as to be converted into anthracite coal, which at the present time is being worked successfully by the Transvaal Anthracite Company, and sold principally for suction gas purposes. This coal carries a very small percentage of ash and volatile matter, and is being largely used for suction gas purposes with success from the Cape to the Zambesi.

PERSONAL.

The next ordinary general meeting of the Chemical, Metallurgical and Mining Society of South Africa will be held in the Lecture Theatre, South African School of Mines and Technology, Johannesburg, to-day (Saturday) at 7.15 p.m. General business: "Sugar for Dust Filters," by Mr. C. Toombs; discussion on notes previously read, etc. Paper for reading: "Notes on Treatment of Pilgrims Rest Ore," by Mr. Robert Lindsay.

* * * *

The list of certificates issued by the Mines Department for the month ending the 31st March, 1917, is as follows:—Mine Managers' Certificates (Metalliferous): T. Little. Mine Overseers' Certificates (Metalliferous): A. E. Bingham, G. W. Cleminson, L. J. Everett, T. James, A. S. Stewart, W. Wilson. Mechanical Engineers' Certificates (Works): W. D. Douglas, J. Styles, A. B. Thomsen, J. Wright; (Mines): J. Brack, E. S. Penrose, J. Ramsay, H. D. Thomas, A. Walker, W. S. Watson. Electrical Engineers' Certificates (Mines): G. T. Andrews, E. T. Oates.

* * * *

News has been received of the death of Major H. C. Symmes of the Mines Department. The deceased officer was born in March, 1874, and educated at Alymer Academy and McGill University, Montreal, Canada. He served 1½ years in an irregular corps during the Boer war and one year in the railway workshops in Pretoria. He joined the Mines Department in July, 1902, as personal assistant to the Chief Inspector of Machinery, and was promoted to be Inspector of Machinery in 1911, and in 1912 was transferred from Krugersdorp to Bloemfontein. He served through the German South-West campaign as an officer in the Wit. Rifles, and went to Europe with the first South African Contingent with the rank of Lieutenant. He soon rose to the rank of Major and was one of the selected officers for the King's bodyguard at the opening of Parliament. He was killed on the 9th inst.—Easter Monday—presumably in the attack on Vimy Ridge. He leaves a widow and two young children—a boy and a girl. The late Major Symmes was one of the most capable and highly respected officers in the Mines Department.

ANSWERS TO CORRESPONDENTS.

All enquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to enquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

"Verdun."—(1) Latest development is none too good, but would hold on. (2) The former. (3) As a speculation only.

"Springs."—The actual figure is given in the quarterly report in this issue.

"Areas."—The annual report will be issued in a few days, answering your questions.

"W. K."—The shares are not dealt in here.

"V. V."—Operations were suspended some months ago. Will probably liquidate.

The Lonely.

Particulars of the output of gold from the above mine for March are as follows:—Mill ran 694 hours; crushed 4,910 tons; fine gold recovered, 1,315.710 ozs., value £5,531 7s. 3d.; slimes treated, 4,910 tons; fine gold recovered, 2,972.731 ozs., value £12,499 3s. 1d.; total recovery of fine gold, 4,288.441 ozs.; total value, £18,030 10s. 4d.; profit, £8,955.

Transvaal Gold Mining Estates.

The following are the particulars of this company's output for the month of March, 1917:—Central Mines: Tons crushed, 13,100, yielding 5,673.1 fine ozs. Elandsdrift Mine: Tons crushed, 1,455, yielding 1,102.4 fine ozs. Vaalhoek Mine: Tons crushed, 2,080, yielding 717.1 fine ozs. Estimated value of month's output, £31,515. Estimated profit for the month, £7,986.

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THE WEEK IN THE SHAREMARKET.

Restricted Business—Improving Prices—Several Notable Advances.

On Saturday morning Springs Mines were the main feature both at the opening and the call, steadily pushing their way upwards until once more they stand level with Government Areas. Rand Selection also made considerable progress, and 1s. 6d. above the cash price was offered in vain for sixty days' buyer's option. New Modderfonteins continued their advance, but Bs. and Deeps were both easier. Main Reefs have also gone ahead. Geduld Proprietary were still on the down grade, as also Rand Klips and Cloverfields. There was very little inclination to deal on Monday morning, so much so that Modder Bs. were passed without any quotation whatever. Prices were practically unchanged. New Modders, it may be interesting to note reached the £20 level as buyers, but there was no selling quotation for anything but fifty shares at £20 10s. After the call there was a good deal of activity in Springs Mines with a rise of 1s. This did not last long, however, and the stock soon came back to its former level. Brakpans came very strong in the course of the afternoon. On Tuesday morning sixty day calls on Government Areas were to be had at 1s. 9d. on 58s. 6d., but 1s. 6d. was the best offer obtainable. Sales were subsequently concluded at the latter price. At the call there was practically no change in prices beyond an advance in Rand Selections, Rand Klips and Cloverfields. Modder Deeps were done at £6 17s. thirty days' buyer's option, which was only 1s. above the cash offer. Springs Mines were once more the centre of attraction on Wednesday morning and just missed touching 60s. at the call. City Deeps and Mines Selections were also in good demand at advanced rates. Kleinfonteins fell considerably and are apparently not at all fancied. There was a further enquiry for sixty day calls on Government Areas. Prices in all the best stocks were to the good on Thursday morning, with Springs the most active. The one weak spot in the market is Kleinfonteins, and they continue dropping from day to day. Outside stocks have been quiet at the following quotations:—South Van Ryn, 5s. sales and buyers; Antimony, 1s. 3d. buyers; Invetia, 48s. 6d. buyers; Verdites, 1s. 5d. sellers; Monteleo, 97s. 6d. sales; Sakalavas, 6s. sales; Randfontein Explorations, 3s. to 3s. 3d.; Old Daggas, 9s. 3d. sellers; and Compound Diamonds, 18s. sales. Most of these sales were in odd numbers.

On Friday there was a sudden run on Apex, which rose in consequence from 6s. 9d. to 8s. Government Areas also were in big demand, advancing to 60s. Springs Mines continued an active factor, and Modder Bs. were done at £7 18s. At the close both Springs and Government Areas eased off. On Friday morning the market was active and prices better all round with few exceptions, as the following alterations will show. Sales: Apex, 7s. 10d. and 7s. 9d.; Brakpans, 99s.; Mines Selection, 23s. 3d.; Cons. Langlaagte, 24s. 6d.; Frank Smith, 1s. 3d.; Government Areas, 60s. 3d.; Knight Centrals, 6s. 11d.; Lydenburg Farms, 5s. 10d.; Modder Deep, £6 16s. 6d.; New Eland, 23s. 3d.; Kleinfonteins, 16s. 6d.; S.A. Lands, 4s. Village Deep, 24s.; Zaaipplaats, 7s. 11d. The other quotations were: Geduld Props, 39s. 3d. to 39s. 9d.; Meyer and Charlton, £5 5s. to £5 10s.; Modder B., £7 17s. 6d. to £8; S.A. Alkali, 23s. to 24s.; New Eras, 10s. to 10s. 6d. There has been some dealing in the new Modderfontein Easts, but genuine quotations have been difficult to obtain. There certainly were provisional sales in the options.

	Fri. 13th.	Sat. 14th.	Mon. 16th.	Tues. 17th.	Wed. 18th.	Thurs. 19th.
African Farms . . .	7 9+	7 3*	7 9		7 6*	7 6*
Apex Mines	6 3*	6 3*	6 3*	6 6	6 6*	6 9*
Pantjes Cons. . . .	6 1	6 0	5 11	5 11	5 10*	5 11*
Blaauwbosch Dmds.	80 0*	80 0*				82 6*
Brakpan Mines . . .	98 0*	98 0*	97 6*	100 0		93 6*
Breyten Colls. . . .		17 0+	17 0+	17 0+		17 0+
Brick & Potteries . .		5 0*		5 0*	5 0*	
British South Africa						12 6+

	Fri. 13th.	Sat. 14th.	Mon. 16th.	Tues. 17th.	Wed. 18th.	Thurs. 19th.
Bushveld Tins . . .	0 4*		0 6+	0 4*	0 4*	0 4*
Cassel Coals	30 01	30 0+				
Cinderella Cons. . .	4 0*		4 6*	4 6*		
City and Subs. . . .	31 9*	31 9*	31 9*	32 0*	31 9*	31 9
City Deeps	80 6	80 6	80 0*	80 0*	81 0	82 6
Cloverfield Mines . .	8 9*	8 6*	8 6	8 10	8 8*	8 8
Clydesdale Colls. . .	12 6*	12 6*	12 6*	12 6*	12 6*	12 6*
Con. Investments . .	17 6*	17 6*		17 6*		17 6*
Con. Langlaagte . . .	24 0*		25 0		24 6*	
Con. Main Reefs . . .	16 3*	16 6*	16 3*	17 0+	16 0*	16 3*
Con. Mines Select. . .	23 0	23 0	23 3+	22 6*	22 6*	22 6
Coronation Colls. . .	31 0*	31 0*	31 0*	31 0*		31 6*
Coronation Freeholds			0 3+	0 3+		
Crown Diamonds . . .						2 6*
Crown Mines	60 0+	60 0+	60 0+		48 0*	48 0*
Crown Mines Deb. . .	£98					
E.R. Centrals	10 0*		10 0*	10 0*	10 0*	
E.R. Coals	2 1*	2 1*	2 0*	2 1*	2 1	2 0*
E.R. Deeps	0 11*	0 11*		0 11*	0 11*	0 11*
E.R. Minings		15 0+	15 0+			
E.R. Props.	10 0*	10 3*	10 6+	10 6*	10 6*	10 6*
Eastern Golds	1 0*		0 11*			1 2*
Ferreira Deeps	24 0+		23 6+			
Frank Smith Dmds . .	3 10*	3 10	3 9*	3 9	3 9*	3 10
Geduld Props.	39 0	38 9	38 9*	39 0	39 0*	39 0*
Glencairns					1 0*	
Glencoe Collieries . .	9 3*	9 0*	9 3*	9 3*	9 3*	9 3*
Glynn's Lydenburgs . .		12 6*				
Govt. Areas	58 9	58 3	58 3	58 6	58 6	58 9
Jupiters	6 3*	6 0*	6 0*	6 0*	6 0*	6 0*
Knight Centrals . . .	7 6*	7 7	7 3*	7 3*	7 2	6 11*
Knights Deeps						21 0+
Lace Props.	4 6	4 6	4 5*		4 6*	4 6
Leeuwpoot Tins . . .	13 9*	13 6	13 6+	12 6	12 6*	12 6*
Luipaardsvlei Est. . .	7 0+	7 0+				
Lydenburg Farms . . .	5 3*	5 5*	5 5*	5 8	5 8*	5 8*
Main Reef Wests . . .	4 2+	3 10*	3 9*	4 2		4 0*
M.R. West Debs. . . .		£40*	£40*			
Meyer and Charltons .	102 0*	102 0*		102 0*		
Middelvlei Est. . . .		1 4*		1 4*		1 4*
Modder B.'s	155 0*	153 6*		158 0a	157 6b	157 6
Modder Deeps	134 6	134 6*	134 0*	135 0*	135 0*	135 6*
Natal Navig. Colls. . .	18 6*		18 6*	18 6*	18 6*	18 6*
New Boksburgs	1 6*		1 4*	1 5*	1 6*	1 4*
New Eland Dmds . . .	22 6	23 0	23 6	23 6+	23 0	23 0*
New Era Cons.	9 1	9 1	9 2	9 3	9 1*	9 6*
New Geduld Deeps . .	7 0*	7 2	7 3	7 0*	7 0*	7 0*
New Gochs				10 0+		
New Heriots		43 0th	43 0th			
New Kleinfonteins . .	17 6	17 4½*	17 3*	17 6	16 10½	16 3
New Modders	395 0*	397 6*	400 0*		400 0*	400 0*
New Rietfonteins . . .				0 6*		
Nigels	2 0*	2 0*	2 0*	2 0*	2 0*	
Nourse Mines		22 0*	22 6	22 3*	22 6*	23 0*
Pretoria Cements . . .	84 0+	82 6*	82 6*	82 6*		85 0*
Princess Estates . . .				1 6		1 6
Rand Collieries				1 9*	2 0*	2 0*
Rand Klips	9 4*	9 0	9 1*	9 4*	9 3*	9 4*
Rand Nucleus			1 6*	1 5*	1 6	1 5*
Rand Select. Corp. . .	67 6	69 0	69 0*	71 0	71 6	73 0
Randfontein Deeps . .	6 1*			6 0	6 1	6 1*
Randfontein Est. . . .	14 9	14 6*	14 9	14 3*	14 3*	14 6*
Rooibergs	4 9*	4 9	4 6*	4 9	4 6	4 9*
Rondepoort Uniteds . .	6 9	7 0+	7 0+	7 0+	7 0+	7 0+
Ryan Nigels	2 1*					
Shebas	1 3*	1 3*	1 3*	1 4*	1 6*	1 5*
Simmer Deeps	3 0*	3 0*	3 0*	3 0*	3 0*	3 0*
S.A. Breweries		28 0+	28 6+	28 0+	28 6+	28 6+
S.A. Lands	3 11*	3 10*	3 11*	3 11*	3 11*	3 11*
Spring Mines	57 0	58 3	58 3	58 9	59 9	61 0
Sub. Nigels	25 6*	25 7½	25 6*	25 6*	25 6*	26 0
Swaziland Tins			30 0+			
Trans. Lands		12 6+		10 0*		
Trans. G.M. Est. . . .		14 0*		14 0*		14 0*
Van Ryn Deeps	66 0	66 0*	65 9*	66 0*	66 6	66 6*
Village Deeps	24 0*	24 0*	24 0	24 0+	24 0	
Village Main Reefs . .	13 9*		13 6*	13 6*	13 9*	13 6*
West Rand Cons. . . .				8 0+		
Western Rand Est. . .	1 7	1 7*	1 7*	1 7*	1 8*	1 8*
Witwatersands			45 0*	45 0*	45 0*	44 0+
Wit. Deeps	16 6+		15 0*	15 0*	15 0*	15 0*
Wit. Townships						16 0+
Wolluthers	10 4*	10 5	10 3*	10 3	10 4	10 3*
Zaaipplaats Tins . . .	7 6	7 8	7 5*	7 6	7 6*	7 6*

*Buyers; †Sellers; A Odd lots; B Ex. London.

THE METRIC SYSTEM AND A UNIFORM SYSTEM OF WEIGHTS AND MEASURES.—II.

By W. INGHAM, M. Inst. C. E., M. I. Mech. E.

TEN. late Sir Benjamin Baker, an engineer of very high standing and co-designer of the Forth Bridge with Sir John Fowler, was in favour of the adoption of the metric system and spoke of his experience in Egypt, and the time saved by using it in connection with the Assuan Dam. He also stated that he found the greatest difficulty in falling back to the Imperial system when he returned to England from Egypt, and referred to the Imperial system as being painful and taking three times as long to make calculations. In a paper read before the American Society of Engineers in 1890 on the metric system, the following paragraph is met with:—"If we are going to contest the commercial control of this hemisphere, why do we not take advantage of England's obstinacy by suiting her customers and thus getting them away from her." The opponents of the metric system say that the mental gymnastics which are so good for the young would be lost if we do away with our present system, but I think it tends to show definitely and clearly that the Imperial system is unsatisfactory when men in opposition to the metric system refer to the Imperial system as *mental gymnastics*. They seem to forget that a great amount of time is wasted in business in after life by calculations which would be absolutely unnecessary if the metric system was adopted. In giving evidence before the Home Commission a representative of a large firm of agents in London stated that no less than six clerks were required to convert the English into foreign weights and measures, and he asked the question: "Who do you think has to bear that cost?" and he gave the answer himself: "Certainly not the foreigner." It is a regular complaint from our Consuls abroad that orders are continually lost owing to English manufacturers persisting in sending catalogues to foreign countries in Imperial weights, measures and coinage. The British Consuls at Milan, Varna, Constantinople, Rouen, Flushing, Marseilles, Algiers, Vienna, Malaga, Lisbon, Rostekhom, Leghorn, Tokio, all have the same complaint, so you see it is a fairly common one. Sir A. Rollett stated some years ago that a foreign power placed an order for an armour-clad abroad simply because our arithmetical language was too much for the purchaser to tackle, and that China had placed orders with Krupp for no other reason than that of our system of vulgar fractions. No country that has adopted the metric system has gone back to its old or any other system, or even proposed any change at all, so that in itself is an excellent testimonial. In this country the metric system is in common use by scientists, metallurgists, electricians, opticians, artillerymen and instrument makers, and the system is also used for gauging the size of telegraph and telephone wires and many other articles of commerce. Lord Kelvin was strongly in favour of the metric system, and said that he believes that the difficulty of making the change has been enormously exaggerated. I now desire to place before you the recommendation of the British Select Committee, which reported in July, 1895. They stated that evidence has been taken from witnesses representing many different interests, and included official, commercial, manufacturing, trade, educational and professional, and that numerous corporations, school boards and chambers of commerce are in favour of its adoption. The Committee find that the present system is unsatisfactory and a drawback to commerce. It was stated that one year's school time was lost in teaching our present system and would be saved by adopting that of the metric. That the change can be made without serious opposition or inconvenience. The committee also stated that the adoption of the metrical system by England would tend to render it universal and recommended:—(1) That the metrical system of weights and measures be at once legalised for all purposes. (2) That after a lapse of two years the system be rendered compulsory by Act of Parliament. (3) That the metrical system be taught in all public elementary schools

as a necessary and integral part of arithmetic, and that decimals be introduced at an earlier period than is usually the case.

The following resolution was adopted by the National Advisory Board for Technical Education at its sixth meeting held at Capetown on 1st March, 1916, regarding the metric system of weights and measures and a decimal system of coinage:—"The board is of opinion that: (1) The necessity for school instruction in the use of a non-decimal system of money, weights, and measures has resulted in a quite unreasonable proportion of the time available for education being spent on work which is really non-educational in character, and has prevented a proper development of the school curriculum in the direction of mathematics; (2) Some relief should be given from the existing conditions, wherein the school deals with three systems of weights and measures, the Imperial, the Metric, and the Cape; (3) The International Metric System has now been taught in our schools for a period sufficiently long to render its daily use quite simple to the greater part of the population. The board therefore desires to draw the attention of the Government to the desirability (1) of making the weights and measures of the metric system compulsory for use in internal trade and manufacture, and (2) of introducing a decimal system of coinage at an early date.

The metric system has been taught for some considerable time in the schools of South Africa, so the change would not be so difficult now as it would have been five years ago. If the change is made to the metric system, it appears to me that there should be a period for permissive use, and then it should be made compulsory. It is difficult to arrive at a period which would be most suitable for the transitory period before the metric system is made compulsory, but it is suggested that two or three years would be satisfactory. In Britain a Permissive Act was passed in 1897 and large works, such as Kynochs, Elswick, Greenwood and Batley, and Willans & Robinson adopted the system with great success. Workmen felt a little at a loss for a few weeks immediately after the system was adopted, but they soon became adepts in manipulating the measuring rules. In 1912 a Bill to consolidate and amend the laws of the Union of South Africa regarding weights and measures was introduced in the House of Assembly by the Minister of Commerce and Industries. Pressure of other business unfortunately prevented the Bill from going forward to the second reading, but it shows the attitude of the Union Government in respect of the metric system.

Now we come to a few anomalies in weights and measures. The sailor speaks of fathoms and leagues, and the landsman of yards and miles. A bushel of corn in Sunderland weighs 46 lbs.; in Shropshire, 72 to 75 lbs.; in Hereford, 63 lbs.; and in Cornwall, 240 lbs. We have about ten different stones in England, varying from 7 to 16 lbs. A seam of hay in Devon is 373 lbs., and a seam of straw 200 lbs.; A boll of wheat in Berkshire is 240 lbs., and a boll of barley 320 lbs. In Argyleshire they reckon it as 6 bushels. In Cornwall a bushel of potatoes is 224 lbs., and in Nottinghamshire 84 lbs. In Worcestershire a pot equals 4 pecks and in other counties varies from 64 lbs. to 94 lbs. The anomaly and startling difference in weights and measures in our trade is a perpetual harass, annoyance and inconvenience. Cheddar and Stilton cheese is sold at 112 lbs. per cwt., but Cheshire and Derby at 120 lbs. The Scotch acre is 6,150·4 square yards, against the English 4,840 square yards, or 100 Scotch acres equals 127 acres in England. Again, the land yard in Devon is 16½ feet in length. Miles differ in England and Ireland, and thus arises the term Irish miles, well known to Irish travellers. For measures we have 20 different bushels. The hogshead varies wonderfully. Ale 54 gallons, wine 63. A cwt. may be 100 lbs., 112 lbs., or 120 lbs. 1,000 Cape feet are equal to 1,033 English feet, while the South African ton is 2,000 pounds as compared with the English ton of 2,240 pounds.

* Paper read before a meeting of the Scientific and Technical Societies of South Africa.

THE ORGANIZATION OF MINE SAFETY AND SANITATION.—III.

Being a Classified Synopsis of the Data Collected by the Committee on Safety and Sanitation of the A.I. of M.E.

THE New Jersey Zinc Co. tried giving cash prizes at the end of six months to the shift boss who had the best record for freedom from serious accidents during that period, having a numerical rating for all accidents, closely following that used in reference to compensation insurance in the State of New Jersey. The element of chance entered into this plan to such a degree that they soon decided to distribute \$10 monthly to every boss who attained a record better than an arbitrary standard, fixed at a rating of 1·2 disabilities per 1,000 shifts of labour worked in his gang during the month. It was further decided to distribute safety cigars at the end of each month to the members of the gang having the best record. A modification of the bonus system has met with some degree of success at one or two iron mines, which require all shift bosses to be safety enthusiasts, and well versed in the most modern methods. For this service they have increased the wages given to shift bosses. However, this method lacks the incentive of a cash reward for a good record, and introduces a disagreeable element in the possibility of having to dismiss relatively good men. It is doubtful if such method would meet with any success, unless adopted by a company operating in a district where there were a large number of companies which had not adopted the plan and which paid a smaller wage to their own shift bosses. Precautions that are of universal interest to coal operators may be revealed by studying the rule books printed by companies operating in different parts of the country, and under the laws of the various States. Many of the dangers in mining cannot be prevented by mechanical devices, therefore it is of interest to note some of the causes of underground accidents, and the means sometimes adopted to lessen these dangers. The following summary of safety devices and regulations adopted by the H. C. Frick Coke Co. will illustrate a few of these points:

- Rescue stations, and 33 rescue teams which practice quarterly.
- General rules and regulations providing increased air at working faces and at intake above that required by the State mining law.
- One hundred and eighty first-aid teams below and above ground.
- Boreholes from surface to release any dangerous accumulations of explosive gas in gobs.
- Shot firers and inspection of all places where shots have been fired to see that there is no fire or other danger.
- Permissible explosives.
- Blasting by battery.
- A system of pipes for sprinkling water in dry places.
- Employment of steady, reliable and sober men only, for responsible positions.
- The best and safest oils that can be procured for illuminating purposes in the mines and mine buildings, etc.
- All mine buildings to be well ventilated and kept clean and neat.
- Cans for storing oily waste, etc.
- Open lights in all buildings prohibited.
- Electric wiring to be well done and examined at least twice a year.
- Proper fire apparatus and fire brigades.
- Finger boards and arrows pointing way out of mine.
- Mines visited and thoroughly inspected by company's mine inspector at least once in sixty days.
- Frequent meetings at the plant of superintendents and bosses to exchange views and discuss conditions, etc.
- The examination of safety-lamp mines on Sundays, holidays, and lay-off days. The mines which have been idle for more than two consecutive days are examined before operations are resumed.
- Religious and political opinions of workmen not to be interfered with.
- Employees must have permission to be absent from duty.
- Mine officials are to see that "turns" are properly and equally distributed.
- Care to be exercised and economy in use of materials and supplies.
- No discriminations on account of nationality or creed.

- Bristol recording and "U" gages on fans to be kept in good condition.
- Safety switches at bottom of all steep butts.
- Masonry stoppings between all air courses.

- Fencing off all abandoned places in mines.
- Systematic timbering.
- Use of post extractors.
- Automatic uncoupling device on rope haulages where they can be used.
- All shafts where men are hoisted are equipped with device to prevent overwinds.
- All machinery fenced off and shop machine belts, etc., guarded.
- Stables, pump rooms, haulage engines rooms and shaft bottoms underground are all of fireproof construction.
- Printed pamphlets, "Safety Regulations—Machinery," provided for the guarding of all machinery, and posting of danger signs, etc.
- Additional shafts to aid ventilation in mines and provide escape way.
- Connections between mines as an additional escape way.
- Gates at surface which cannot be opened until cage is there.
- Safety catches at cage landings.
- Safety bars on cages. Introduction of concrete-lined shafts.
- Safety cabs on electric larries. Steel rail throughout all mines.
- Ascensional ventilation for mines. Testing for gas above roof in gobs.
- Prohibiting work in any place in which gas is discovered.
- Printed pamphlets in five different languages showing how to do work in safety and guard against accidents.

As mentioned above, this company has issued a pamphlet entitled "Safety First," which is printed in the different languages spoken by its employees and illustrated by reproductions of photographs, which clearly point out the dangers of not following the instructions as laid down. The proper way of performing various duties and the outcome of carelessness are strongly impressed upon one's mind by these underground photographs, for which men have posed as if performing their work in a careless manner with injury or death resulting. Footnotes describe these pictures and important instructions are printed in large type.

Photographs especially illustrate the danger of men walking along haulage-ways and being crushed by trips; of failing to put clevis-blocks on rails when loading cars in dips; of bad joints in tracks; of riding in front of trip, or between cars; of not standing in a safe place when cars which have jumped the track are shunted on again; of pushing cars with hands on the corner; of not obeying signals and waiting for trip coming in an opposite direction; of coupling cars on the inside of a curve where one would be caught and crushed if trip began to move; of the dangers of shock from trolley wires, if men carry augers, picks or shovels over their shoulders, should trolley wire guard be broken.

One company operating in the West Virginia section requires a systematic standard amount of timbering, whether the top is considered dangerous or not, and extra timbering where unusually bad conditions prevail. By this requirement, they do not have to rely so much upon the judgment of the men as to whether or not the top is dangerous. This

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same company require a clearance of not less than 21 feet on each side of the mine cars along all haulage-ways. In some cases, water is piped to all workings to dampen the roof and sub and wet down the dust.

SAFETY SIGNS AND SIGNALS

It is necessary to have signs to warn men of danger, and to point out places of safety, and means of exit. In view of the fact that many languages are spoken by the labourers of this country, and that the miner is naturally a great wanderer, it is highly important that some universal danger sign that needs no verbal explanation be adopted. Mr. Higgins suggests that the solid red circle be accepted as a universal sign, as it appears to be in every way adapted to underground use. He further suggests an arrow as a direction sign to exit along mainway, etc., and a symbol of a ladder to indicate a ladder-way or stairway. It is, however, impossible to cover all the requirements of danger signals by symbolic signs, but whatever wording is used should be as brief and explicit as possible. Too much variation in signboard instructions leads to confusion. It seems as though some distinction should be made between a danger sign and those denoting warnings or bearing instructions, as the red ball should instantly impress upon the mind the necessity for immediate caution. A few of the signs observed by Mr. Higgins in various parts of the country are described by him as follows:

SIGNBOARDS FOR POINTS ON THE SURFACE.

- "Danger: Keep Away" (around the boundary of surface caves).
- "Do Not Walk On These Tracks."
- "Danger: Keep Away from Shaft Collar."

Bank Profits.

From the dividend statement of the Standard Bank of South Africa it is evident that profits are on a higher level than in 1915. The dividend is maintained at 14 per cent., while £80,000 is appropriated to writing down investments to prices current on December 31 and about £100,000 is carried forward. A year ago £71,000 was written off investments and £87,000 carried forward. During the year the National Bank of South Africa has opened 15 new branches and an agency in New York. The earning power of the bank shows marked development, for although the dividend was maintained at 6 per cent., the net profits showed an increase of nearly £35,000. Deposits amounted to £23,157,200, as against £20,223,400, while the carry forward was £44,300, as compared with £30,600 last year. The African Banking Corporation appears to have enjoyed the same prosperity as the Standard and National. The distribution has been increased from 6 per cent. to 6½ per cent. The net profit was £14,000 higher than in 1915. Deposits rose from £5,563,900 to £5,735,900, and £10,000 was carried to the reserve, which now stands at £220,000.

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The Symms Method of Timbering.

A recent issue of "Coal Age" describes the Symms method of timbering in mines, which consists of one-inch planks bent in the form of an arch, with the crown touching the roof and the skewback resting against the sides some inches below the roof line. The spandrels are filled with any waste material at hand, in order to distribute the pressure over the entire arch. A test installation has been in place for one year in an American coal mine, and the company, being satisfied with the result, is preparing to instal the system on a more extensive scale. Its advantages are that it affords increased available space in thin, flat coal seams, and it is often possible to timber without the necessity of removing the roof or waiting for it to fall. The quantity of timber is reduced considerably, especially where props, and probably also struts, have to be used to support the crown bars. The possibility of accidents due to props being knocked out is entirely eliminated.

A large portion of the money required for the private flotation of the Nakob mine on the S.W. Protectorate border has, we are informed, been already collected. It is anticipated that allotment will be possible at an early date; and that exploratory operations will begin with little delay.

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Engineering Notes and News.

- Use Solid Wire in Place of Small Stranded Cable.

The Cable Makers' Association has recently addressed a letter to the engineers of central stations, pointing out that the Government requirements in small stranded wires are at present so great as to require the use of practically every wire-drawing and stranding machine in the country. Thus the demand for such wires other than for direct military or naval needs entails considerable delay in execution of orders. Many engineers to public authorities and companies insist upon the use of stranded conductors for wires below a specified sectional area, and some prohibit the use of solid conductors entirely. If such restrictions can be *temporarily suspended during the war*, the cable makers will be enabled to put forth the full capacity of their plant for the military and naval needs, and yet meet the requirements of other customers carrying out other essential work. The Association therefore suggests that during the war No. 18 S.W.G. be used in place of 3/22 S.W.G. or 7/25 S.W.G., No. 16 S.W.G. in place of 3/20 or 7/23 S.W.G., No. 14 S.W.G. in place of 7/22 and 7/21½ S.W.G., and hopes that permission will be given to contractors in each district to use solid conductors as an emergency measure. In view of the urgent military necessity for restricting the use of small stranded conductors for the present, we feel sure that the Association may safely count upon the patriotic co-operation in this matter not only of station engineers, but also of all users of such materials. In addition to circularising the station engineers, the Association is also advertising the matter in the Press.

Fuel Research.

On the recommendation of its Advisory Council, the Committee of the Privy Council for Scientific and Industrial Research has appointed a Board of Fuel Research. Sir George Beilby will act as Director of the new organisation, and will be assisted by the Hon. Sir Charles Parsons, Mr. Richard Threlfall, and Sir Richard Redmayne, the Chief Inspector of Mines, as members of the Board. By arrange-

ment with the Governors of the Imperial College of Science, the Lord President has retained Prof. W. A. Bone as consultant to the Board. Prof. Bone will continue to hold his chair at the Imperial College, but will abandon all private consulting work while he is connected with the Department of Scientific and Industrial Research. Proposals for research initiated by the Coal Conservation Sub-Committee appointed in July, 1914, will stand referred to the Fuel Board, to which also will be transferred the material collected by the Fuel Committee which the British Association formed in 1915. The Admiralty and the Ministry of Munitions have also been making tests and investigations on fuel problems, and it is hoped that their work will be co-ordinated with that of the new Board. The work of the Board will be to investigate the nature, preparation, and utilisation of fuel of all kinds, both in the laboratory and, if necessary, on an industrial scale. Sir George Beilby, with the assistance of his colleagues on the Board, will be responsible for drawing up the schemes of research, and when these have been approved by the Advisory Council and the Committee of the Privy Council, authority will be given him to carry them into effect. In this way he will have

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the whole weight of the Department and its finance behind him, and since he will have direct access to the Lord President, who is the responsible Minister, there will be no danger of his recommendations lying pigeon-holed among departmental files.

The Iron Resources of the Transvaal.

At the meeting of the Institution of Engineers last Saturday discussion took place on a question of vital importance to the engineering trade. This was the shortage of iron in consequence of the limited supply now obtainable owing to the war. A digest of the position as placed before the Institution is as follows:—The Witwatersrand and South Africa are faced with an iron famine as serious to trade as the food famine is to the Huns. The year before the war, iron and steel goods were imported into the Union to over the value of £2,500,000 sterling. Over 40,000 tons of rails for Government and private enterprise, besides 7,500 tons of shoes and dies for the gold industry are required annually and these figures only apply to maintenance and repairs. In the east iron trade the difficulty of obtaining supplies from overseas is forcing the foundries from being repairers of plant to manufacturers of plant in increasing degree. Pig iron is rapidly becoming less obtainable. In the 10 years before the war local merchants paid from £8 10s. to £10 in Johannesburg. To-day the price was from £20 to £24, and the higher price is very often offered in vain. Shipping conditions and the overseas industrial situation indicate increased scarcity in the immediate future; while after the

war the depletion of development in both coal and iron mines necessary to-day by the war coupled with the probable increase in labour—all point to no resumption of pre-war prices. After peace the disbandment of many millions of the defenders of our Empire, who have learned the power and solidarity of discipline, will doubtless apply a disciplined vote to any attempt to lower the plane of life their dependents have learned to enjoy by their sacrifices. The fact that manufacturing has been forced on the trade starves the source of origin of scrap iron with the result that the Union has been closely combed out as well as Madagascar and Mauritius. The electrification of the Reef has until recently caused the scrapping of a quantity of steam machinery, which has staved off the iron famine, but this supply is drying up, and the natural scrap from the electrical plants is much less than from steam scrap supply. Few countries are so well endowed with the necessities for iron and steel manufacture as the Transvaal which abounds in good ironstone of all the grades required. The same may be said of limestone and coke. Ironstone and limestone can be delivered at the smelting furnaces at approximate Home prices—probably less. Coke is costlier, but with an increase of, say, 100,000 tons per year, the present prices could not hold, as coal to-day at pit-head is less than half the price in Great Britain. There is a unanimity of opinion that pig iron can be produced locally at £3 per ton less than the cost of the pig averages of the 10 years preceding the war. Nor are there any difficulties foreseen in the working Bessemer or other converters for the production of blooms for the steel trade.

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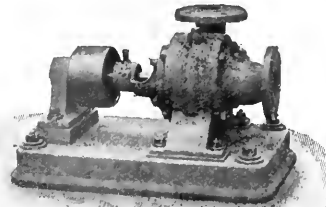
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THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Coal Mines Buying Freely—Erratic Quotations—A New Departure—Johannesburg a Growing Centre—Electrical Machinery and Plant.

BUSINESS is erratic, but on the whole quite fair, chiefly because the demand from the coal mines is quietly better. On Wednesday a good buying order was put out by a coal mine for imported bar iron, which was freely tendered for and secured at a shade lower price than some people anticipated. However, the Transvaal and Natal collieries are hampered for machinery, such as cutters, borers and construction materials to cope with the necessary expansion required by the ever-increasing demand for coal for the shipping demand at the coast ports. They also recognise that self-help is advisable, and to this end several engineering shops and foundries are being established, which statement is supported by the fact that expert workmen, such as moulders and fitters, are being drawn from Johannesburg for the initial steps. As regards the demands from the gold mines, there is undoubtedly a lull, for which two reasons are suggested. Perhaps the most prominent is that conjectures are in the wind that something of importance is likely to happen during the next month or six weeks in the war conditions. The other reason is that the mines with their heavy stocks can well afford to wait, as prices are high and the more buying is pressed the higher they go.

ELECTRIC MACHINERY AND PLANT.

As foreshadowed in these notes from time to time, the Johannesburg Municipality again consider it advisable to issue another notice in reference to electric lighting, asking consumers to be more sparing in its use. The reason given is that there are grave risks of a serious breakdown during the winter months. Additional plant, of two large turbo-alternators, should have been here in January last, but

the contract was not fulfilled by the manufacturer in Britain owing to the urgency of munition making. Our High Commissioner in London has been appealed to, but with little result so far. It may be mentioned that not only is there a shortage of power plant but also of the distribution system. The conclusion to be drawn is that it can be well assumed that steps have been taken by our Municipality to obtain assistance from other towns and the mines; hence an undoubted shortage throughout South Africa of big power plant and other electrical material. If perchance Johannesburg is inconvenienced through a breakdown in lighting and power, that is only a local matter, but an inference to be drawn from the shortage should be taken to heart by other places, because if our High Commissioner in London is practically powerless to assist the leading city of South Africa, what can other places expect, let alone individual importers?

JOHANNESBURG A BIG CENTRE.

It has been definitely ascertained that the offices recently vacated by the African Life Insurance, in Hatfield House, President Street, have been taken by Cooper's Sheep Dip people. The present head office for South Africa, of the firm of Cooper & Nephews, of Berkampstead, England, are at East London and will be moved from there to the above address on May 1st. The big agricultural shows here may be one attraction for this particular firm, but the way big firms have gradually moved here since the Far Eastern Rand has come into such prominence is a good answer to the quidnuncs, that the place as a great commercial centre will continue to grow during their lifetime. Commercial affairs will be much assisted with telephones from Pretoria to the coast to be

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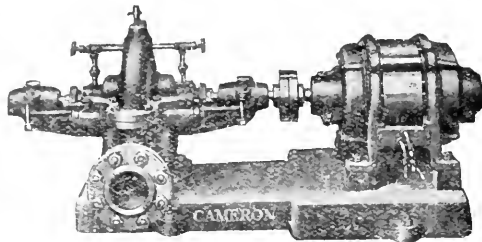
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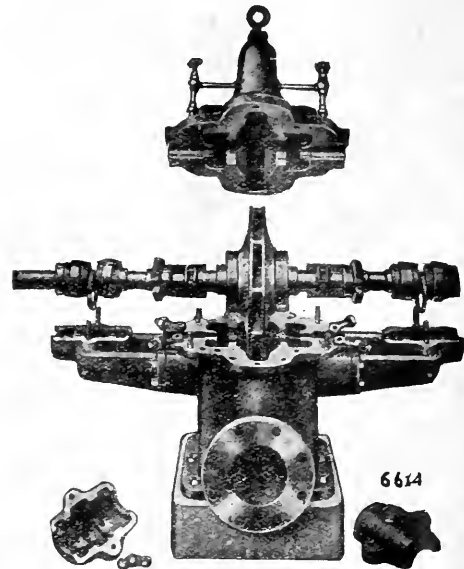
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put up by the Government at the first favourable opportunity, to primarily assist in Parliamentary matters, and obviously the commercial men will come in to assist paying the expenses.

IRON, STEEL, AND OTHER QUOTATIONS.

The last mail did not bring any mining material worth mentioning, and as the next mail had to put back for repairs, it has not left the Thames yet, hence a long wait for the next consignments. All steel plates are up 2s. 6d. per 100 lbs., which is only an approximate price, as most dealings in steel outside the buyers' requisitions on the Exchange are a matter of negotiation. As an illustration, the manager of a firm on Wednesday was asked for a price for a small line in connection with the mines, and he gave a sporting quotation of 2s. and the buyer offered 1s. 6d. and the order was booked. The previous price was 10d., and the episode mentioned occurred at one of the leading mine houses. All copper quotations are up £2 per ton in London according to the latest cables. There has been a rise of 5s. per dozen for shovels and 4s. each for wheelbarrows. Wire nails are up to 37s. 6d., but seeing the next consignments cannot be landed in Johannesburg under that price, buyers are getting a cheap line. It is expected that there will be an acute shortage of light steel rails, and then will come a similar feature in the heavier lines, which are less expensive to handle at the factories. Hopes are entertained that America will eventually assist the position, but nothing in any way definite can be obtained from that source at present. A cable arrived on Thursday stating that all asbestos goods had advanced a hundred per cent. owing to the shortage of raw material. The scarcity in grey waste is becoming more acute, and what was sold at sixpence last month is now 9d. per lb.

VARIOUS TRADE ITEMS.

The whole commercial world is all agog in reference to the super-abundance of the maize crop, which is now practically assured against the ravages of frost. In the machinery line the agricultural factors are the people looking for big things, but unfortunately their stocks are not too plentiful. In consequence of the energies of a member of the Agricultural Society and a mild criticism from the Press, there are signs of efforts being made to manufacture ploughs in Johannesburg. Already negotiations are on foot in a small way to make plain serviceable ploughs and the ordinary harrows, but so far as can be gathered there is nothing

definite done at present. There are two timber ships from the Baltic on the way out, hence no anxiety about timber. Trade in that respect is keeping up on the Eastern Rand, but quieter in all other respects. The oil and colour trade is 20 per cent. below last month; in fact, quite a lull is now experienced and there are more painters out of work than for a long while past. Linseed oil advanced another penny a gallon in London on Tuesday last.

QUOTATIONS.

We now and again receive queries from our distant readers as to our quotations, which is not surprising. For example, one was received in reference to mercury and chlorate of potash. The mercury quotation has been carefully revised from £8½ up to the present one of £27½ per 75 lbs. The queried quotation was £22½, which was obtained from a responsible firm on actual sales. However, within a few days of that a jump occurred owing to enquiries from Rhodesia and the Northern Transvaal. It may be as well to mention that the mines here have ample supplies, which they have obtained direct under contracts made immediately the war broke out, therefore there is no free market in the absence of the gold mines demand. However, there is always a demand for outside mines, also a little speculation has occurred, as one firm alone bought a nice parcel at £14½ and quietly sold small lots from a single bottle upwards from that price to £25. Now it so happened that on Thursday an enquiry was made there and £27½ was asked for the very few bottles on hand. Another firm was approached and £35 was asked, which seems somewhat of a staggerer; however, it is very questionable whether a single bottle could be obtained from that particular source under £35, simply because the commodity is so scarce. The latest quotation from London is £21½, which means £27½ in Johannesburg. Chlorate of potash given at 3s. is still a fair

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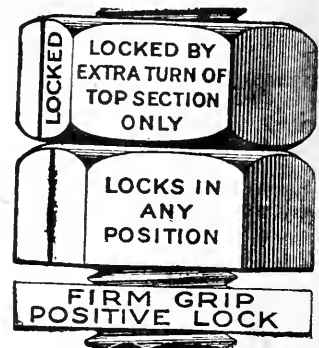
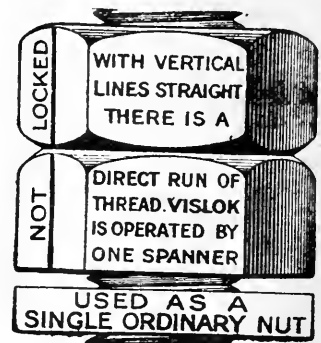
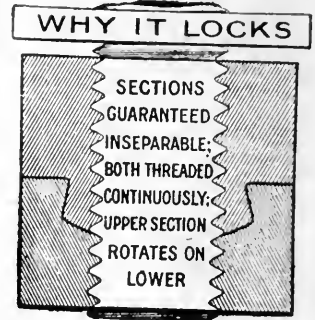
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quotation for wholesale, and at least double retail. It was ascertained that some time ago the Johannesburg market was flooded through an importation of a five-ton lot for a local industry for making cheesa sticks for lighting the fuse in the mines. Part of this consignment was taken by the dynamite factory, which as a rule import for themselves. However it seems they are business people, and when they can pick up a line in Johannesburg cheaper than importing, they do so. A hint was given that a parcel might be taken at 2s. 6d. in Johannesburg to-day, hence the difficulty experienced in getting absolute quotations in these "jumpy" war times. To meet this "war" difficulty, any quotation will be verified by us on receipt of a reply-paid telegram.

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Timber: Deals, Baltic, 9 x 3, short and medium, 1s. 1 $\frac{1}{2}$ d.; longer lengths, 1s. 2 $\frac{1}{2}$ d. to 1s. 3 $\frac{1}{2}$ d. (Oregon, 1s. 1d.); flooring, $1\frac{1}{2}$ x $\frac{3}{4}$ and 6 x $\frac{3}{4}$, 7d. to 7 $\frac{1}{2}$ d. per sq. ft.; do., $4\frac{1}{2}$ x $1\frac{1}{2}$, 9 $\frac{1}{2}$ d.

and 6 x $1\frac{1}{2}$, 9 $\frac{1}{2}$ d.; ceilings, 6 x $\frac{1}{2}$, 3 $\frac{1}{2}$ d. to 3 $\frac{3}{4}$ d. per sq. ft.; Oregon, 4 x $\frac{1}{2}$, 5d.; pitch pine, 8s. per cub. ft.; Oregon, 5s. 9d. to 6s. per cub. ft.; clear pine, $\frac{1}{2}$ in. x 12 in., 8 $\frac{1}{2}$ d. per ft.; 1in. x 12in., 9d. to 10d.; teak, small planks, 11s. 9d. per cub. ft.; do., large, 15s. 6d.; jarrah, 9s. 6d. per cub. ft.; poplar, 1 in. x 12 in., 10 $\frac{1}{2}$ d.; scantling, 1s. 1 $\frac{1}{2}$ d. to 1s. 3 $\frac{1}{2}$ d. per ft., 3 x 9.

Bricks, cement, lime, etc.: Cement, nominal, 31s. 6d. per cask; Pretoria Portland, 9s. 3d. per bag; 8s. 3d., truck loads; lime, white, 7s. 9d.; truck loads, 6s. 9d.; slaked, do., 5s.; blue, 3s. 3d.; plaster lime, 4s.; bricks, stock, delivered, 37s. 6d. to 45s.; wire cuts, 50s. to 70s., pressed 70s. to 80s. per 1,000, road transport difficult to obtain; salt and white glazed bricks, £27 10s. per 1,000; tiles, roofing, £17 $\frac{1}{2}$ square; glazed tiles, 10s. 6d. to 17s. 6d. yard; paving cement tiles, 8s. 6d. yard laid; terra cotta tiles, £15 per 1,000; reinforced concrete columns, 6 ft. plain, 22s. 6d., fluted, 24s.; fireclay bricks, £9 $\frac{1}{2}$, good average, per 1,000; clay chimney pots, 80s. per doz.; fire clay, 37s. 6d. ton on rail.

Oils, paints, lead, oxides, glass: Linseed, raw and boiled, 32s. 6d. per 5 galls.; white lead, 74s. 100 lbs., 73s. 6d. 500 lbs.; turpentine, 49s. 6d. per 2 $\frac{1}{4}$ galls.; 10 1, 58s. 6d.; coal tar, imported, 10s. to 12s. 6d. per 5 galls.; oxide in oil, 36s. per 100 lbs.; dry oxide, 22s. 6d. to 25s.; S.A. crude oxide, 12s. 6d.; linseed oil putty, 4s. 6d. per 12 $\frac{1}{2}$ lbs.; bladders, 36s. casks of 100lbs.; grease A.F. axle, 23s. 6d. to 25s. per 100 lbs.; tallow, 1s. per lb.; White Rose paraffin, 17s. 9d. 2 5; Laurel do., 17s. 3d.; petrol, 28s. 6d. 2 4; motor oil, 7s. to 7s. 9d. per gall.; engine lubricating oils, 27s. to 40s. per case; cylinder, 28s. to 42s.; paints in tins, 10d. to 1s. per lb., according to quantity, and if ordered to be mixed, 20 per cent. on pre-war rates. British plate-glass, 4in., 3s. 6d.; do., mirror, 4s. 6d.; window, 16oz., 1s. to 1s. 3d. foot.

Chemicals: Mercury, £27 $\frac{1}{2}$ per 75 lb. bottle; bichromate potash, 3s. 6d. lb.; chlorate, 3s. lb.; permanganate, 12s. 6d. lb.; alum, 5d. lb.; carbolic acid, 8s. 6d. lb.; borax, 87s. 6d. 100 lbs.; cyanide soda, 1s. 5d. lb.; hypo, 9d. lb.; acetate lead, 75s. 100 lbs.; litharge (assay) 70s., (commercial) 57s. 6d. 100 lbs.; zinc sheets and blocks, 1s. 6d. lb.; plumbago crucibles, 5d. per number.

Electrical Goods: Lamps, high volts., British, Holland & American, 20s. to 22s. wholesale, and 26s. to 30s. dozen, retail; carbon lamps, 49s. per doz.; pure rubber flex, 6d. to 8d. per yard; 3/20 coils of wire, 28s. to 30s.; do., 3 22, 23s. 6d.; tubing, 18s. to 20s. 100 ft.; keyholders, 5s. to 7s. 6d. each; round blocks, 3 $\frac{1}{2}$ in., 3s. 6d. doz.; lamp holder cord grips, 12s. 6d. to 14s. 6d. doz.; switches, 5 amp., 20s. to 24s. doz.; British glass shades, 24s. to 35s. doz.; porcelain shackles, 11s. 6d. doz.; do., bobbins, 12s. 6d. to 14s. per 100; cleats, 20s. per 100; P.O. insulators, 18s.; motor, 3 h.p., about £35 to £37, new.

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The Week's Meetings.

RHODESIA CHAMBER OF MINES.

22nd Annual Meeting.

At the annual meeting of the Rhodesia Chamber of Mines, on March 29th, Sir Boucher Wray, Bart. (President), in the chair. His Honor the Administrator, Sir Hammond Chaplin, Hon. President, was present.

The Chairman's Speech.

Gentlemen, The report of the Executive Committee for the year 1916 has been in your hands for some time, and I presume you are willing to take it as read. In moving the adoption of the report, together with the balance sheet and accounts for 1916, I propose, as is customary, passing in review the history of the Chamber and the mining industry during the period covered. In the first place there is cause for congratulation in that the mining industry has been so successfully maintained, in spite of the many difficulties it has had to contend with resulting from the existence of a war unparalleled in the world's history, both as regards its immensity and also as regards the enormity of the struggle for the vindication and the supremacy of what I may, I think, justly term "Right against Might." It is now rather more than two and a half years since hostilities commenced, and although the mines in this country have been drained of much efficient white labour, have had to contend with a considerable shortage of native labour due to military requirements, and have had to meet a very definite increase in the price of stores and materials, the result of the twelve months' working shows a very satisfactory advance on the previous year's achievement.

It is with feelings of intense pride and pleasure that not alone the mining industry but Rhodesians will realise that since the beginning of hostilities it has fallen to their privileged lot to provide the following "sinews of war," and thus to help the Government and her Allies in the supreme effort and sacrifice which they are making for the salvation of the world:—

Gold	£10,189,315
Silver	51,970
Copper	741,496
Chrome iron	636,963
Asbestos	177,124
Lead, antimony, tin and wolframite	2,937

These are the sinews of war which have been produced by this country, to the value of £11,799,805.

In allowing a feeling of pride and happiness to creep into us at this happy result of our labours, do not let us for a moment forget that all our efforts would have proved fruitless, all our endeavours thus to help would have been frustrated, had it not been for the ceaseless, untiring, scientifically directed workings and movements of our Royal Navy and her Allied Fleets. To the water-wide patrollings of this mighty force is due the comparative safety with which our stores and machinery have been brought to us and our products conveyed in return. Do not let us forget either the magnificent work of our mercantile marine, which has faced the hidden danger of the enemy's submarine and mine with unflinching courage. In closing my remarks on this subject I mention the interesting fact that no less than three members of your Executive are actively serving with His Majesty's forces, viz., Captain Bucknall, M.L.C., Captain the Hon. A. J. Fraser, and Mr. L. Ludlow.

FINANCE

Dealing with the financial position of the Chamber, the balance sheet and accounts show that this continues to be satisfactory. There has, it is true, been an excess of £121 14s. 8d. of expenditure over revenue during the period, but this was due to the extraordinary expenditure which should not be recurrent, but if so, forms details of work for which we are even liable and responsible. The usual donation of £25 has been made to the Museum and a sum of £5 5s. has been given to the Bulawayo Agricultural Society. As regards investments, the amount of £22,000, consisting of £1,000 previously invested in the 4½ per cent. Imperial Loan, and £1,000 on fixed deposit, has now been placed in the 5 per cent. War Loan, and a further sum of £500 is on fixed deposit for one year. It has also been found possible to place another sum of £300 on fixed deposit for six months, as it is calculated this money will not be required during that period.

MEMBERSHIP.

We record with pleasure a considerable increase in membership during the year under review. Fourteen new members have joined the Chamber, nearly all of whom, it is gratifying to note, belong to the small workers' section of the industry. It cannot be too clearly emphasised that this Chamber represents the mining industry as a whole, including the working of base metals and minerals, as well as the precious metals; and further, that its functions and responsibilities embrace the fostering and assisting of all classes of workers, both large and small. The interests of small workers are in most cases identical with those of the larger producers, and it is only right and fair that everyone interested in mining in this portion of the country should contribute to the financial support of the Chamber.

You will remember that at the annual meeting last year your President made reference to a proposal to amalgamate this Chamber with the Salisbury Chamber and the Hartley Small Workers' Association. It was, however, not found feasible to carry out this proposal, but it is gratifying to note that a step was made in the desired direction of unity of action by the inauguration of an Annual Mining Conference held at Salisbury on the 15th and 16th November last. This Conference was largely attended by representatives of the mining industry from all parts of the country, and was considered by those present to have been far-reaching in the measure of success which its deliberations attained. One of the many practical results obtained was the formation of a central body to be known as the Rhodesian Mining Union, to which all mining Chambers and Associations in the country could belong. It is hoped that the Union will prove useful in voicing the collective opinion of the mining community as occasion offers, and will tend to the desired unanimity of action amongst representatives of the industry in dealing with questions affecting its interests as a whole.

HIGH GRADE EXPLOSIVES.

During the year there has been a good deal of correspondence between the Government and your Chamber in regard to the necessity of making use of the various substitutes in place of high explosives. The cause for which this necessity arises is the fact that these substitutes contain much lower percentages of the all-important war material known as nitro-glycerine, so largely used for artillery purposes. It is gratifying to note that to date the use

of these substitutes has been almost universally adopted by our mines and that in a large number of cases material economy has been the result.

From information which has only just come to hand it would appear that the requirements of the Ministry of Munitions may render it necessary for them to place even further restrictions than they have already done on the use of glycerine, the effect of which may be either the reduction of our present allowance of 14 per cent. of blasting gelatine, or under certain circumstances the total prohibition of the manufacture of this article. As the subject is one of vital importance to our industry I think it my duty as your President to lay the position before you on this present occasion.

In the first place I want you to realise how considerably the mining industry has been treated by the Imperial and also by the Union Government authorities. The former have to date granted an issue of glycerine to the three South African factories sufficient for the requirements of various mining industries. Further, the Union Government of South Africa have, I consider, acted towards us in a most liberal and broad-minded manner.

The three factories which are responsible for the supply of explosives to this country are situated in their territory, and in place of unduly looking after their own interests they (the Union Government) have placed us upon a similar footing to themselves and have allowed us to obtain exactly the same grades of explosives as themselves. To exemplify how beneficial to us is this preferential treatment I take this opportunity of informing you that countries such as Congo Belge, Portuguese East Africa, and the overseas dominions of Australia, New Zealand and India, have only been allowed to obtain explosives containing a maximum of 50 per cent. of nitro-glycerine. As already mentioned, a short while since we were notified of a shortage of glycerine and that it was imperative for us to adopt the use of lower grade substitute for blasting gelatine, and this, as I state, has been loyally adhered to.

To-day another and more insistent appeal is presented to us. The Union Government have received cable intimation from the Minister of Munitions that the consumption of nitro-glycerine must decrease, and it is suggested that mines may be purposely and selfishly using an excess of nitro-glycerine and hoarding up stocks of explosives. To ascertain the exact position the Union Government has called upon every mine in the Union to furnish stocks of explosives on hand, together with their monthly consumption. This has already been done, and the information is now on the way to London. It has been pointed out to us that the Union Government cannot exercise any such control over what is happening here, but they have suggested, in our own interests, as well as theirs, that we voluntarily co-operate with them to reduce the grade of all explosives used, and upon no account, at the present time, to lay in excess stocks of explosives. They have pointed out they are entirely in the hands of the Imperial authorities, who can exercise the necessary control, and make us conform to their wishes by materially reducing the shipments of glycerine to South Africa. The effect of such an act by the Imperial authorities would be very far-reaching, as we would then be all compelled to either use very much lower grade explosives or possibly go without same.

The foregoing remarks will, I feel sure, gentlemen, make not alone you but the whole of the mining community

realise how serious is the position and how either by ignorance or by the selfish use or the excess of storage any individual mine management may jeopardise the whole of the mining operations in Rhodesia.

RAILWAY INQUIRY.

Possibly the most important question dealt with during the year has been the perennial one of railway rates and policy. Your Chamber, at the urgent request of the mining community, addressed a memorandum to His Honour the Administrator, pointing out that owing to high railway rates the progress of the country, from a mining point of view, was, in their opinion, being retarded. In reply the British South Africa Company promised that an inquiry should be held, to be presided over by the well-known railway expert, Mr. W. M. Acworth. At the Mining Conference, it being felt that this question of railway rates affected not alone mining but all branches of commercial activity, it was decided that the matter of the inquiry and the required preparation for it should be dealt with and undertaken as a subject of national importance, and a Committee was formed consisting of the presidents of the principal bodies in the country, representing mining, farming and commerce. For the purpose of arranging for expert advice in the presenting of our case a sub-committee, consisting of the Presidents of the Salisbury and Bulawayo Chambers of Commerce, the Rhodesian Small Workers' and Tributors' Associations, and the Rhodesia Agricultural Union, was formed, and the position today is that the case from the people's point of view is practically complete.

In reviewing this subject it would appear that we have been living for many years in a vicious circle, from which it is seemingly impossible for either party locally to find a way out. The railways state that, given a larger population, rates can be reduced; the people, on the other hand, contending that existing rates preclude any possibility of the population being largely augmented. I feel sure that it is the sincere wish of all three of the bodies moving in this matter that some solution to this impasse may be found by Mr. Acworth, beneficial alike to the British South Africa Company, the Railways, and the people of Rhodesia. The inquiry, we had hoped, would have been held in April, but owing to the enemy submarine menace, the British South Africa Company do not consider it fair to ask Mr. Acworth to sail at present. It is hoped that it will be possible to proceed with the inquiry at an early date.

DISTRICT COMMITTEES.

During the year the idea was mooted of creating local committees of small workers in various districts where the numbers warranted it, for the purpose of co-operating with your Chamber when necessary on matters affecting the interests of the industry. With this object in view your President visited the Queens and Filabusi districts and addressed meetings in both places, explaining the aims of the Chamber and setting forth the work it had accomplished during the 21 years it had been in existence. The result, I am happy to say, was a considerable increase in the membership of your Chamber, the new members consisting almost entirely of small workers. There are now seven members on the Filabusi Committee and five on the Queens. Both Committees have discussed and brought forward several questions of great interest to the industry, and it is hoped they will realise the importance to all concerned of maintaining this work and of continuing in touch with the Chamber.

MEALIE PRICES AND CONTRACTS.

The Executive Committee has several times during the year had under consideration the high price of mealies, and is of opinion that it cannot be too strongly impressed upon the Government that no export of this commodity should be permitted unless it is abundantly clear that it will not involve any shortage in this country. With the object of enabling mine owners, particularly small workers, to secure supplies of mealies and mealie meal at a reasonable fixed price throughout the year, an arrangement is being made with the Salisbury Farmers' Co-operative Society by a Committee appointed at the Mining Conference for that purpose. It is understood that the Society has now completed its conditions of contract, and any mine-owner desirous of coming under this arrangement should communicate direct with the Society before the 1st May next.

PATENTS.

A useful arrangement has been made by your Patents Committee with the Transvaal Chamber of Mines for an exchange of lists of applications for letters patent affecting the mining industry in the Transvaal and Southern Rhodesia.

MATERIAL FROM GREAT BRITAIN.

Your Chamber has reason to hope that the procedure adopted in regard to exports of mining material from Great Britain to Southern Rhodesia has been of great assistance to merchants and to the mining industry. The restrictions imposed by the Imperial Government upon exports have considerably increased during the period under review, and it is fortunate for this country that His Honour the Administrator was enabled to make so satisfactory an arrangement with the British South Africa Company in London. The Chamber's appreciation and thanks are respectfully tendered to His Honour for his beneficial assistance in this matter. It is anticipated that the difficulties in obtaining mining supplies from Great Britain will increase during the present year, and merchants are strongly advised to secure the necessary certificates from this Chamber to attach to their indents.

PROTECTION DURING WAR.

You will doubtless remember that the question of the protection of unworked claims during the war was referred to at the general meeting last year. Since then the Government had agreed to grant special protection for two years from the outbreak of hostilities, to claim owners who could show that they were doing a reasonable amount of work in the country. Your Executive again approached the Government on this subject, urging an extension of protection on the ground that mining conditions had become still more difficult and burdensome to claim-owners in consequence of the continuation of the war. We are pleased to state that the Secretary for Mines has sympathetically agreed to continue giving special protection on the conditions originally laid down.

CLAIMS CURRENT.

We are indebted to the Secretary for Mines for the following information in regard to claims current: The number of gold claims current at the end of the year was 45,939, a reduction of 1,567 as compared with 1915; 5,788 new claims were registered and 7,355 claims were either abandoned or forfeited. Base mineral claims current on 31st December last numbered 11,164, an increase of no less than 3,483 as compared with the previous year. The number registered during 1916 was 6,144, and 2,661 were forfeited

or abandoned. Alluvial claims current at end of year amounted to 19. Nineteen were registered and 26 forfeited. Seven coal prospecting areas were current on 31st December. The footage utilised for the inspection of gold claims during the year was approximately 178,581, and for base mineral claims 9,462, or a total of 188,043 as compared with 191,330 in 1915. The footage thus shown is that actually required for inspections taken out and is "graded" footage. It does not represent the total development work done during the year. Thirty gold claims only were inspected by payment. The Mines Department administrative net revenue (unaudited) was £24,797 0s. 9d., as against £30,601 the previous year.

OUTPUT IN 1916.

It is very satisfactory to be able to state that the production of gold and other minerals for 1916 constitutes another record. During the year there were crushed on gold mines 2,987,444 tons of ore, compared with 2,845,934 tons in 1915. Sands treated were 1,245,547 tons, against 1,115,480. Slimes 606,871 against 671,545 tons. The total yield of gold was 930,356 ozs. fine gold, of a value of £3,895,311, an increase of 15,327 ozs., of a value of £72,143, as compared with 1915. If the total gold production is divided between the two provinces the following result is obtained:—

	Fine ozs.	Value.
Mashonaland . . .	471,273	£1,976,210
Matabeleland . . .	459,033	£1,919,101

which shows Mashonaland leading by 12,190 ozs., of a value of £57,109. The average value per ton milled throughout Southern Rhodesia shows a slight decrease, being 26.03s., as against 26.86s. for 1915.

The value of other minerals declared for the period dealt with amounts to £934,393, as against £575,906 for 1915, being an increase of no less than £358,487. This gratifying increase is due to the enhanced production during the year of copper, chrome iron, and asbestos. As far as one can see, the output of these three important minerals will not only be maintained in the future, but possibly show a material increase, thus indicating what your Chamber has of late years felt, that the base metal industry of this territory will ultimately prove a most important factor in its development, and merits every possible help and assistance that the Government and the railways can give it. The monthly average number of producers for 1916 was approximately 206, as against 203 the previous year. Of the 206 the companies can claim 24 and the small workers and tributors 182. Of the total output of gold the companies produced £2,579,246 and the small workers and tributors £1,316,065. The average number of stamps in use in 1916 was 1,172, as against 1,151 the previous year. Taking the month of December last we find the following variety of reduction machinery and plant at work in the territory: 960 Gravity stamps, 112 Nissen stamps, 30 grinding pans, 27 tube mills, 16 Chilian mills, 8 Huntington mills, 7 gates rolls, 1 pneumatic stamp, 3 roasting plants, 1 smelting plant.

DIVIDENDS.

It is very satisfactory to observe that in the year under review the Rhodesian mining companies distributed an amount of dividends larger than in any previous year, the total being £641,981, an increase of £78,395, or 14 per cent., as compared with 1915. The total cash dividends declared by Rhodesian mining companies to 31st December last amounts to the sum of £4,596,087. This figure does not include dividends declared by Rhodesian

development and on the mining companies in cash or scrip amounting to over £2,400,000, and of the dividends paid by the local Rhodesian mining companies or syndicate.

THE GRAND TOTAL

The grand total gold produced by Southern Rhodesia at the end of 1916 was £36,500,000, and of other metals and minerals £3,462,400, making a grand total value of mineral production of £40,045,400.

NATIVE LABOUR

You will find full particulars of the position of native labour in the report. It is satisfactory to note that there was an increase in the monthly average number employed by the industry of 2,293 notwithstanding the Imperial restrictions on recruiting in Northern Rhodesia owing to the war, the respective numbers being 40,211 for 1916, and 37,916 for 1915. This increase has been divided between producing gold mines and other mines working base metals and minerals, the latter receiving by far the larger share in proportion to the number of natives respectively employed. The number of native labourers working on non-producing mines has remained almost stationary during the year, there being a slight decrease of 159 compared with 1915.

MORTALITY FIGURES

The mortality figures continue to be satisfactory, the rate being 26.73 per 1,000 per annum, which only varies from that of 1915 by decimal point 6, that year being the lowest on record.

NATIVE LABOUR BUREAU

The number of natives supplied to employers of labour by the Bureau during 1916 was 6,681, as against 11,316 in the previous year. This falling off was chiefly due to the stoppage of recruiting in Northern Rhodesia by the Imperial authorities, the natives in that territory being required for transport purposes in connection with the war. It is interesting to notice that farmers received a considerably higher percentage of the natives distributed than the miners, viz., 52.33 per cent. against 37.24 per cent. General employers and employers in Northern Rhodesia received 10.43 per cent. Of the total number of natives supplied to miners, small workers received 36 per cent. All recruits now distributed in Southern Rhodesia are contracted for 12 months' service. Desertions among Bureau natives amounted only to 2.55 per cent. on the average number employed during the year. The number of recruits rejected as medically unfit amounted to 11.01 per cent. of the total number examined.

GEOLOGICAL SURVEY

The Chamber, appreciating as always, the work done by the Geological Survey in the past, is inclined to welcome the suggestion made by "Hyphen" in the "Bulawayo Chronicle" of March 16th, to the effect that pamphlets written in simple form for the assistance of prospectors might, if possible, be issued.

SECRETARIAL

We have to record with great regret the loss during the year of the services of Mr. W. W. Jenkins, who for twelve years had occupied the position of Secretary to this Chamber. The Chamber takes this opportunity of expressing its high sense of appreciation of the services rendered, not alone to it but to the industry as a whole, and places on record

the conviction that the Chamber's present high standard of usefulness to the mining industry is largely due to the energy and capacity displayed by Mr. Jenkins during his tenure of office. In September last Mr. J. D. Morton was elected out of many candidates applying, and was appointed Secretary to the Chamber. The work of the Chamber has, it possible, been of a more strenuous nature than in previous years, and as one brought into close contact with him I wish to place on record on behalf of the Executive our keen appreciation of his ability and energy. Mr. Morton has also undertaken the additional work of Secretary to the Railway Inquiry Committee.

I cannot close my address without welcoming to our meeting His Honour Sir F. D. P. Chaplin, and I purpose later more particularly referring to our keen appreciation of his presence amongst us. Gentlemen, I now have the pleasure of formally moving the adoption of the report and accounts for the year 1916.

Mr. De Beer, in seconding the adoption of the report and accounts, congratulated the President on his very exhaustive and interesting statement. Sir Bouchier Wrey had occupied the Presidential chair on at least five different occasions, and he (the speaker) had worked with him for the greater part of that time and could speak from personal knowledge of the vast amount of work the President had put in and the wonderful grasp he had of all the details of the business. In connection with the working of the Chamber, there was a time when it was generally supposed that the Chamber was primarily for the benefit of the large companies. If ever that was so, that time, as the Chairman had said, was now past. They now had a large number of small workers in their membership, and the small workers had a representative on the Executive. The Chamber was only too keen at any time to take up the cudgels on behalf of the small worker, and every small worker should realise that it was of great assistance to himself and to the mining industry generally if he joined the Chamber. Referring to the question of the geological survey, mentioned by the President, Mr. De Beer said that in view of the abnormal conditions last year's output was satisfactory, but of late years there had been very few new discoveries. When normal times returned again he hoped a big prospecting campaign would be inaugurated, and that would mean work for the geological department. A great deal of time would be saved and a great deal more work done, if the prospector could go into the geological office and consult geological maps. He had much pleasure in seconding the adoption of the report and accounts.

The motion was unanimously carried.

The Chairman proposed that His Honour the Administrator be elected Hon. President of the Chamber. They all knew what a busy man Sir Drummond was, and how long was the journey from Salisbury to Bulawayo, and he wished, on behalf of the Chamber, to assure His Honour of their very keen sense of appreciation of his coming such a long distance for the purpose of presiding at their annual meeting. He also would take the opportunity of congratulating Sir Drummond and Lady Chaplin on the great honour which His Majesty the King had conferred upon them. They all felt that the honour would gracefully rest upon them. They felt that Sir Drummond thoroughly deserved the distinction, and that it was an indirect honour to Rhodesia that their Administrator had been singled out.

Mr. J. G. McDonald seconded, and said he was quite sure he voiced the opinion of the whole Chamber when he said they would feel gratified at His Honour's acceptance of the position. They knew that Sir Drummond Chaplin in the

past filled an important position in the mining world in Johannesburg and took a very keen interest in the industry. That interest he had transferred to Rhodesia, and it seemed to him (the speaker) that that interest was keener owing to the exceptional features of mining in this country. He could say that any requests which the Chamber had had to make to the Administrator had been received in the most sympathetic manner. Especially was this so in connection with the difficulty of getting forward machinery and stores to enable the industry to go on. Had it not been for the excellent services of His Honour he did not know what the mining industry would have done.

THE ADMINISTRATOR

His Honour, in accepting the post of Honorary President, said: Mr. President and gentlemen,—I thank you very heartily for the warm welcome you have given me and for the very kind words of congratulation which have fallen from your lips, Mr. President, and which have been so warmly endorsed, regarding the honour which His Majesty has been good enough to confer upon me. I look upon that with the greatest satisfaction, because not only is it an evidence that the Imperial authorities are pleased with the administration of this territory, but also with the services rendered by the people of this territory in these times. It is the greatest gratification to me to know it has been so well received. As regards the immediate purpose of this meeting, I think I may safely congratulate you on the good show the industry has made during the past year. In connection with mining, everyone is always inclined to look ahead, and that is quite right. Sometimes in looking ahead I have found people are inclined to be a little pessimistic. Now, it is quite clear that although the output for the year is a record, it is also true that one or two rather important mines are ceasing or will shortly cease to contribute to the output. It is quite right that we should look forward and consider how we can fill the places of these by getting further mines into operation. That is an exceedingly difficult problem, but I associate myself entirely with what has been said by you, Sir, and by Mr. De Beer as to the necessity for assisting prospectors—for it is prospectors who are generally the means by which propositions are brought to the notice of the mining world to be subsequently turned to good account. You ask that something should be done, but nobody has yet put any concrete proposal forward and that makes it difficult. As you probably know, arrangements have been made by which the Commercial Branch of the Company offers a certain amount of engineering advice free to small workers. By another scheme we have under consideration we hope to enable the small workers to dispose of minerals which they find a difficulty in marketing. It frequently happens that a small worker discovers a mineral but finds great difficulty in disposing of it. Under the scheme which the Company now have under consideration they will do their best to effect a realisation, and, where it is possible, will make some advance in cash in respect of the mineral before it is actually sold. Details of the scheme are being worked out and I hope it will be possible to make them public before long.

LABOUR DIFFICULTIES

In the mining industry there are difficulties to be faced, and these difficulties must increase your working costs. There is the difficulty of European labour. We have been, all of us, in somewhat of a difficulty in that matter. We have been anxious to see that every man who can reasonably be spared should go to the

front, but it was necessary to keep the main industries of the country going. We have done our best to keep the balance and I think it only right to say that the whole country ought to be grateful to the men in control of the mines for the extremely reasonable way in which they have dealt with the matter.

It was the same in the case of the Native Regiment. We arranged that no recruiting for the Native Regiment should take place on a mine without the consent of the management, and I have to express gratitude to the managements of mines for their assistance in that respect. At present it is hoped there will be no shortage of natives, and with the successful termination of the operations in East Africa—which we hope for at no very far distant date—the field for recruiting in Northern Rhodesia will be reopened. We do not know, of course, but we hope that the conflict in East Africa will soon come to a successful conclusion.

MINING SUPPLIES.

There are other problems to be faced, such as the extreme difficulty of getting supplies from Europe. I think we owe a great debt of gratitude to the Imperial authorities. We have had difficulties, but somehow we have managed to keep on. But as time goes on we may find things increasingly difficult. A few days ago I received some instructions on the subject, the result of which will be made public shortly. Meanwhile, I may say it is proposed that there will be more examination in the future into all requests made for permits to obtain supplies in the United Kingdom, with a view to seeing whether they can be secured from other sources or made locally or done without. It is proposed that an official should be appointed to deal, in the first instance, with every application for a permit. He will obtain information, take the best advice he can get, and after his conclusions have been reached the application will, if passed, be forwarded. That, in broad lines, is the procedure which the Secretary of State will adopt. I have not got all the details, but that is, broadly speaking, the scheme, the procedure devised for this territory and for all Crown Colonies and minor dependencies. I think you will agree with me that if we appoint a high official of the Administration all applications will be most carefully considered.

So far as gold is concerned, although people are anxious to have your product, they are not willing to give you any more for it than in normal times. In fact, they give you a little less. In that respect you are not like your sister industry. But against that the price of base metals, and the export of things like asbestos and chrome yield a very fair return, and we hope that will continue.

THORNY GROUND.

As regards the question of food supplies, you Sir, made an appeal to me to see that an adequate amount of maize was left in the country to meet our own wants and prevent the price going up unduly. I know—in dealing with maize questions I am on rather thorny ground. But the thing seems to be fairly simple. There is a big rise in the world market for maize, and if the farmer is going to export maize when the price is high he is going to do good to the country. On the other hand the farmers, I am sure, will not complain if, under the powers we possess, we limit the amount to be exported, so that sufficient is left for the mining population and the population generally. We have done that in former years without difficulty, and we hope to do it this year. Although the crop is not so good as once seemed likely, I am informed by the Secretary for Agriculture that there will be an appreciable amount for export after meeting all the requirements of this territory.

There is not much more to say. I can only say that as in the past we shall do our best to assist the mining industry to continue and to increase its activities. The administration of the Mines Department is very efficiently and sympathetically presided over by my friend Mr. Montagu. I can assure you we will do our best to carry things on, and I hope we shall not fail. The difficulties of today are great, and they may, as I say, become greater. It will be necessary to economise with the greatest care and see that in ordering supplies you ask for no more than is absolutely necessary. In conclusion I would like to thank you again for the very cordial welcome you have given me and for the honour you have done me in electing me as your Honorary President.

The President moved that Sir Starr Jameson, Bart., P.C., V.B., and Mr. E. W. S. Montagu, Secretary for Mines and Roads, be elected Honorary Vice-Presidents, and that the following gentlemen be elected Honorary Members for the ensuing year: Sir W. H. Milton, K.C.M.G., Mr. C. D. Fleming, Mr. W. M. Phillpotts, Mr. H. B. Maufe, Major N. MacGlashan, President Transvaal Chamber of Mines, and President Salisbury Chamber of Mines. The retiring members of the Executive were re-elected.

In doing so the President took the opportunity of thanking Mr. Montagu for coming down from Salisbury. There was a time when they fancied that Mr. Montagu was perhaps not imaginative enough for Rhodesia.

Mr. Montagu said it was a great pleasure to him to come down. In fact it was always a pleasure to him to meet mining men, especially the mining men of Rhodesia. It was perhaps true, as the President had remarked, that at one time there was some want of sympathy in his case. But things had changed. For instance, the Chamber of Mines, as had been said, was not now the preserve of the big man only, but represented the small workers of Matabeleland, just as the Salisbury Chamber represented the big and small men in Mashonaland. The year had been a successful one from every point of view. The whole industry had come together by that Mining Conference held at Salisbury at which the Mining Union had been formed. At one time the position in Rhodesia was that one Chamber would pull one way and the other another, while the small workers stood between the two, but now all were united and could speak to the Government with an united voice. He was afraid that this year the output of gold would show a shortfall, although not a very serious one. Taken all together, however, it was an extraordinary thing that in a year of war they had progressed instead of going back, and as to the future it must be remembered that what they lost on gold was being regained in base minerals. In regard to the question of explosives which the President had explained, he wanted particularly to thank the Chamber for having taken up a most patriotic attitude, for deciding they must do their best with lower-grade explosives. One or two mines still stood out, but he hoped they would soon fall into line with the others. There was no doubt about it that they were going to be asked to cut down the use of high grade explosives still further.

Mr. George Mitchell, M.L.C., proposed that Sir Bouchier Wrey be re-elected President and Major Heany and Mr. J. G. McDonald Vice-Presidents. In doing so Mr. Mitchell remarked that re-election of the chief officers was contrary to the usual custom, but the unusual circumstances of the present day warranted this course. Important negotiations and investigations were proceeding in connection with the railway inquiry, for instance, and the whole of the

threads of that business were in the hands of the President and the Vice-Presidents. The gentlemen he proposed for re-election had filled the posts with great distinction.

The motion was carried unanimously.

The Mayor (Mr. W. J. Atterbury) moved a vote of thanks to Sir Bouchier Wrey for the excellent work he had done during the past year as President of the Chamber, and said it was probably only within the knowledge of members of the Executive how much time and trouble Sir Bouchier devoted to the mining industry.

The vote of thanks was enthusiastically carried, and, the President having returned thanks, the meeting terminated.

WITWATERSRAND NATIVE LABOUR ASSOCIATION.

Mr. E. A. Wallers presided at the annual general meeting of the Witwatersrand Native Labour Association held in the Chamber of Mines on Monday, April 16. Others present were: Messrs. A. French, S. C. Steil, H. Williams, A. Grant, B. Moses, C. W. Latham, E. Renaud, J. H. Ryan, W. P. Fisher, W. Ross, J. Munro, P. Richardson, A. F. Lyall, W. Saunders, Geo. Falcke, F. Raleigh, H. Newhouse, J. F. Rutherford, E. Danckwerts, S. Evans, G. Inroth, L. Edwards, and W. Gemmill (secretary). In moving the adoption of the report and accounts for 1916 Mr. Wallers congratulated the members of the Association first on the generally satisfactory native labour conditions throughout the greater part of last year; and, secondly, on the successful results of the Association's operations. He stated that as regarded the general labour supply at the present time it must be realised that the position was getting distinctly tight in some directions, as the percentage of complements employed had fallen from 93 per cent. in 1915 to 83 per cent. in 1916, and certainly showed no improvement in the current year to date. In view, however, of the extent to which the natives of the Union had responded to the demands made upon them for military service in Europe and in East Africa, he did not think they could consider the number coming forward to the mines as unsatisfactory, and it was hoped that the next few months would reflect some increase in numbers. The total number of natives employed by members of the Association at the end of 1916 was 206,223, as compared with 218,879 at December 31, 1915, a decrease of only 10,651. The actual decrease in the case of the gold mines was, however, greater, namely, from 209,438 to 191,547. The fact that the decrease in the case of the gold mines was greater than that of all members was due to the larger number of natives employed by the coal mines and by the Premier Diamond Mine in 1916 as compared with 1915. There had been a greatly increased demand for labour by the coal mines, owing to large Admiralty requirements, and also to the increased bunkering trade which had followed the temporary substitution of the Cape route for the Suez Canal route.

The Death Rate.

The death rate amongst the natives employed by members was the lowest on record, amounting to only 17.17 per 1,000 per annum in 1916, as compared with 19.87 in 1915. He believed that the steady improvement in the death rate which had taken place in recent years had not reached finality, and that it would continue for some years to come. He believed that the continued efforts in this direction, assisted more particularly by the recent discoveries of Dr. Lister bearing on the methods of dealing with pneumonia, would result in a reduction in the death rate, which some years ago would have been thought impossible. The death rate had also fallen from 1.34 per cent. in 1915 to .83 per cent. in 1916, and was by far the lowest on record. The reduction

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